

AD-A073 695

MARYLAND UNIV SOLOMONS NATURAL RESOURCES INST

F/G 8/8

HYDROGRAPHIC AND ECOLOGICAL EFFECTS OF ENLARGEMENT OF THE CHESA--ETC(U)

SEP 73 D E RITCHIE, T S KOO

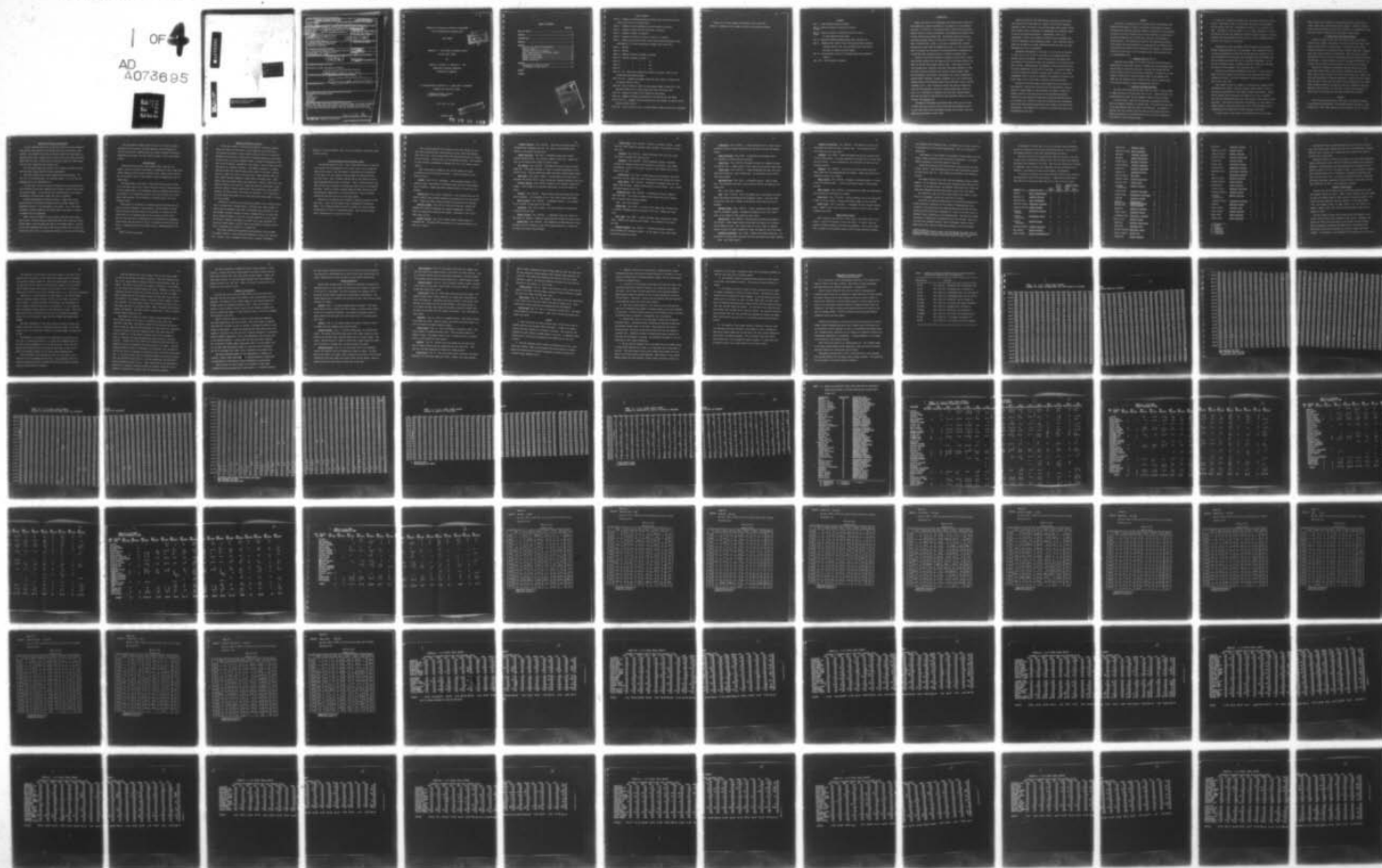
DACW61-71-C-0062

UNCLASSIFIED

NRI-REF-74-71

NL

OF 4  
AD  
A073695

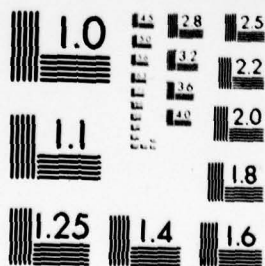




1 OF 4

AD

A073695



MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

ED

A 073695

DDC FILE COPY

Approved for public release;  
distribution unlimited



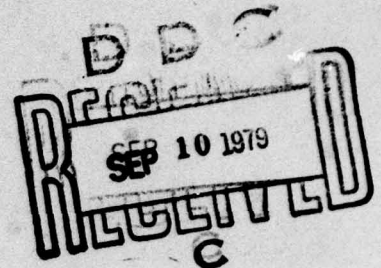
REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Appendix VI <b>6</b>	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Hydrographic and ecological effects of enlargement of the Chesapeake and Delaware Canal fish survey in the Maryland portion of the C & D Canal.		5. TYPE OF REPORT & PERIOD COVERED Appendix VI.
7. AUTHOR Ritchie, Douglas E. / Ritchie Koo, Ted S.Y. / Koo		6. PERFORMING ORG. REPORT NUMBER N.R.I. Ref. No. 74-41
8. PERFORMING ORGANIZATION NAME AND ADDRESS Chesapeake Biological Laboratory University of Maryland		8. CONTRACT OR GRANT NUMBER(s) <b>15</b> DACW61-71-C-0062
11. CONTROLLING OFFICE NAME AND ADDRESS U.S. Army Corps of Engineers Philadelphia District Customs House, 2nd & Chestnut Sts. Philadelphia, Pa. 19106		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) <b>12</b> 283p.		12. REPORT DATE <b>11</b> Sept 1973
		13. NUMBER OF PAGES 98
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) For public release; distribution unlimited		
<b>14</b> NRI-REF-74-41		
17. DISTRIBUTION STATEMENT (of the Abstract entered in Block 20, if different from Report) <b>9</b> Final rept. 1971-1972		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Chesapeake and Delaware Canal Fishes Fish surveys Elk River Maryland		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report gave statistical results on fishing samples taken from the Maryland side of the Chesapeake and Delaware Canal in the summer of 1970 thru 1973. It was found that the white perch is the most abundant fish in the canal.		

407036 Lku



HYDROLOGIC AND ECOLOGICAL EFFECTS OF ENLARGEMENT  
OF THE CHESAPEAKE AND DELAWARE CANAL

FINAL REPORT



APPENDIX VI. FISH SURVEY IN MARYLAND PORTION  
OF THE C AND D CANAL

BY

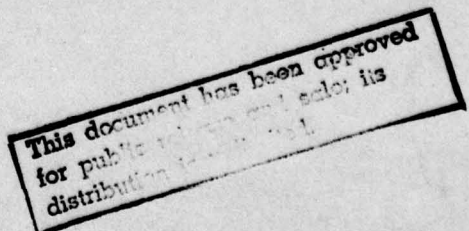
DOUGLAS E. RITCHIE, JR. AND TED S. Y. KOO  
CHESAPEAKE BIOLOGICAL LABORATORY  
UNIVERSITY OF MARYLAND

TO THE PHILADELPHIA DISTRICT, U. S. ARMY CORPS OF ENGINEERS

CONTRACT NO. DACW 61-71-C-0062

Approved for public release;  
distribution unlimited

N.R.I. Ref. No. 74-41



September 1973

79 09 10 093

# TABLE OF CONTENTS

	Page No.
LIST OF TABLES.....	i.
FIGURES.....	iii.
INTRODUCTION.....	1
METHODS.....	3
RESULTS.....	5
Physical and Chemical Measurements.....	6
Species Caught.....	7
Seasonal Occurrence of Species.....	8
Areal Distribution of Fish Species Caught.....	9
Beach Seining Results.....	14
Biomass of Fish Caught.....	19
Numbers of Fish Caught.....	22
Length Frequencies.....	23
SUMMARY.....	25
Discussion of effects of Canal enlargement on fish fauna.....	27
TABLES	
FIGURES	

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DDC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	<input type="checkbox"/>
By _____	
Distribution/	
Availability Codes	
Dist	all and/or
A	20 101



## LIST OF TABLES

Table 1. Summary of designated sampling stations code and location for the fish survey of the C & D Canal area.

Table 2. Summary of water temperatures for each month, by station.

Table 3. Summary of salinities for each month, by station.

Table 4. Summary of depths, by station.

Table 5. Summary of durations of tows, by station, in minutes.

Table 6. Common and scientific names of the fish species encountered during the Maryland C & D Canal Fish Survey, December 1970 to May 1973.

Table 7. Omitted.

Table 8. Omitted.

Table 9. Summary of species incidence, by month.

Table 10. Species incidence, by zone. - I.

Table 11. " " " " II.

Table 12. " " " " III.

Table 13. " " " " IV.

Table 14 - 26. Beach seine caught fish, species by species, 1958 to 1972, by Maryland Fish Administration.

Table 27-A to T. Summary of biomass totals per mile trawled, by species and by station, 06/71 to 05/73.

Table 28. List of fishes in order of total weight caught by trawl net in the Maryland survey of C & D Canal region from June 1971 to May 1973.

Table 29. Summary of biomass of all species for each month.

Table 30. Summary of biomass by percentage of all species for each month.

Table 31-A to X. Numbers of fish by species per mile trawled, by species and by station, 12/70 to 05/73.

Table 32. List of fishes in order of total numbers caught by trawl net in Maryland



survey of C & D Canal region from December 1970 to May 1973.

Table 33. Summary of total numbers of fish of all species, by month.

## FIGURES

- Fig. 1. Fish trawling stations, Maryland
- Fig. 2. Monthly incidence of species by station.  
(1-104)
- Fig. 3. Species incidence by station for each of 3 months  
(1-24)  
in 1972 sampled by beach seine.
- Fig. 4. Maryland Fisheries Administration beach seining sites.
- Fig. 5. Combined trawl catches of all fish species from 4 selected  
stations (CD 101, 104, 105, and 106 AB from June 1971 to  
May 1973, in pounds per mile trawled.
- Fig. 6. Average pounds of fish of all species per mile trawled per  
station.
- Fig. 7-20. Size frequency by species.



## INTRODUCTION

Before the advent of the Chesapeake and Delaware Canal, there were two neighboring, separate waterways in the upper part of the Delmarva Peninsula. To the east is the Delaware River, which drains such metropolitan cities as Trenton, Philadelphia, and Wilmington and empties into a short, 46-mile long Delaware Bay. The Delaware River and Bay are a continuing waterway, where no river mouth is distinguishable. To the west is the Elk River, which, on its way to Chesapeake Bay, receives tributaries of Back Creek and Bohemia River (Fig. 1). The mouth of Elk River is located near the head of the Bay wherefrom the Chesapeake Bay travels 180 miles southward before it reaches the Atlantic Ocean.

Because of the great difference in length of the two bays, saline water easily intrudes into the lower portion of the Delaware River, but water in the Elk River complex remains fresh. Fish fauna in the two river systems must, therefore, have been essentially different in that the lower section of Delaware River harbors brackish species (white perch, hogchoker, bay anchovy, silversides, etc.) and be frequented by marine species (bluefish, croakers, weakfish, etc.), and the Elk River complex contain only freshwater fauna (carp, sunfishes, shiner, darters, catfishes, etc.). Also, diadromous species that migrate between the ocean and the respective rivers must travel through their respective bays; i.e., fish bound for Delaware River must pass through Delaware Bay, and fish bound for Elk River and other Maryland waters must travel through the Chesapeake Bay.

Although the Chesapeake and Delaware Canal first came into being in 1829, there was not much mixing of Delaware and Chesapeake waters, nor was there much faunal interchanges between the two bays, since the Canal was partitioned by three locks.

Since the removal of the locks and the conversion from the small 10-ft deep by 36-ft wide Canal to a larger, 12-ft by 90-ft sea-level waterway in 1927, the waters of the two bays began direct mixing. Saline water tended to move from Delaware to Chesapeake, and freshwater tended to move in the opposite direction. Consequently, there was an interchange of fauna, with brackish and marine species spreading westward, and freshwater forms extending eastward. Also, diadromous species could use the shortcut in their migrations between the ocean and upper Chesapeake Bay and its tributaries.

Subsequent enlargements of the Canal to 27 ft by 250 ft from 1936 to 1938, and to 35 ft by 450 ft from 1956 to the present should have hastened faunal interchanges. Forty-six years have now passed since the opening of the sea-level Canal, the utilization of the Canal as residence, nursery, feeding ground, and migration route by fishes must have been well established, and may still be evolving. To gain an insight into these processes and thereby to predict future effects by the latest enlargement, which is yet to be completed, we surveyed fish fauna in the Canal region as one of the means to achieve the above objective.

The survey covered the entire Canal length plus the vicinities of the entrances. The work was carried out by two institutions, with the College of Marine Studies of the University of Delaware covering the Delaware portion of the study area, and the Chesapeake Biological Laboratory of the University of Maryland covering the Maryland portion of the study area. Efforts by these two institutions were coordinated. Survey plans were mutually agreed upon; gear, methods, and efforts were standardized. This Appendix is a report of the survey work that covers the Maryland portion only.



## METHODS

Our choice of sampling gear in catching fish in the Chesapeake and Delaware Canal region is severely restricted by environmental factors. The strong and frequently changing currents, the presence of large amounts of debris, the lack of shallow zones, and the constant use of the Canal by ships preclude the use of pound nets, fyke nets, and anchored or staked gillnets. Drift gillnets are used by some commercial fishermen in the Canal, but their usefulness as a sampling gear is limited by the necessarily brief working period dictated by the currents. We therefore selected the trawl net as our main sampling gear, and used beach seine as a supplementary gear.

### 1. Sampling Stations (Fig. 1)

Along the entire length of the Canal, from the western entrance at Turkey Point to the eastern entrance at Reedy Point, we established sampling stations at three mile intervals. Stations 104 through 108 thus cover the entire section of the Canal in Maryland. In addition, we established a station each in upper Elk River (106A, B) and Bohemia River (105A, B); two stations south of (100 and 101), and two stations north of the western entrance in upper Chesapeake Bay (Table 1).

### 2. Trawl Net and Sampling Method

We used a 25-ft semi-balloon otter trawl net, with 1 1/2-inch meshes in wings and body and 1/2-inch mesh liner in cod. A metal chain was connected between two doors and was dragged in front of the net opening.

At each station, a pair of tows were made in opposing directions, each tow covering a distance of one-half mile. All paired tows were made in the deep channel along the length of the waterway. In addition, at Stations 104, 105, and 106, where the Canal is the dredged Elk River, a third tow was made on the shallow bottom. These tows are designated by the suffix "H" to the station number.

A unit tow is defined as one-mile tow, the sum of paired tows at each station. Where only a single tow was made, the catches were multiplied by two to make a unit tow. The opening of the net is 3 ft deep by 25 ft wide. Therefore, a unit tow drains  $3 \times 25 \times 5,280 = 396,000 \text{ ft}^3$  of water. The speed of the boat was maintained relatively constant during all the tows. Therefore, the time required to finish each tow varied, depending upon the direction and velocity of the current.

Sampling was started in December 1970; thereafter it was repeated monthly through May 1973 with a few omissions. These omissions occurred in January and February of both 1971 and 1972 when ice conditions in the Canal prohibited trawl operation, and in November 1971 and September 1972 when no monthly trips were made due to unavoidable happenings. In all, we took 24 monthly samples, including January and February of 1973 when the winter was mild enough to have the Canal void of ice.

Each haul was processed immediately on the boat. If the catch was small, the entire sample was processed; if the catch was large, then a subsample was taken. The size of subsamples varied according to the size of the total catch.

Each species of fish in a sample or a subsample was weighed and the individuals were counted. Whenever possible, enough number of fish of each species was measured to show length frequency distribution. Measuring was usually done by punching fork length of the fish on a plastic tape, and the punched marks were later read against a ruled scale in 10 mm partitions. This method facilitated the processing of a large number of samples within a relatively short time, and it also diminished error by eliminating voice transmission and hand tallying in the field.

At each station, some physical and chemical data were also taken.



These included water temperature and salinity both at surface and on bottom, taken with a Martek water quality analyzer. The depth and duration of each tow made was recorded on an edometer. Air temperature, wind and other weather conditions were also noted on field sheets.

### 3. Beach Seine and Sampling Methods

During the summer of 1972, we used a beach seine to catch shore fishes in July, August, and October. The seine was 50 feet long, 6 feet deep, and had 3/4-inch stretched meshes. At every one of our trawl stations described in the previous section, wherever there was a seinable shore area, beach seining was accomplished. This was done by two men, each holding one end of the net, and dragging the net along the shore area for 300 feet. A second seining was done in the opposite direction. The catches were processed in the same manner as with otter trawl catches.

The State of Maryland's Department of Natural Resources has been doing beach seining work at many locations throughout the State since 1956. Some of their stations are in the C and D Canal area. Messrs. Roy Scott and Joseph Boone of Maryland Department of Natural Resources kindly made that part of their data available to us for inclusion in this report. Their seining activity was carried out from July to September each year. Each haul covers 150 feet. At some sites, 2 hauls each were made; at other sites, 4 or 6 hauls each were made in each year since 1958.

### RESULTS

All of our data were punched on IBM cards, and analyses performed by electronic data processing. The following results are based on trawl catches only. Where beach seining data are included, they are so noted.

### Physical and Chemical Measurements

At each sampling station and at the end of each tow, water temperature and salinity were measured at the surface and on the bottom with a salinometer. The temperature records are shown in Table 2 in three digits in degrees Celsius with a decimal point in front of the last digit understood. Where "000" is shown, it means that no record was taken; but "000\*" means that the water temperature was actually zero.

For each month under each station, the top figure represents surface, and the bottom figure represents bottom measurements.

The letter symbols after station numbers mean the following: "N", "S", "E", "W" are directional; "H" represents shoal; "A" and "B" are two opposing tows in the subtributaries.

In this Table, station to station differences can be discerned across the horizontal row for each sampling month; seasonal variation can be seen in vertical columns. As can be seen, the coldest months are in January and February, and the warmest months from June to September.

Salinity measurements are shown in Table 3. These data reveal a general picture of top-bottom differences and the slight changes from Chesapeake entrance to the mid-section of the Canal. For a full understanding of salinity regimen in the Canal region, the reader is referred to Appendix XIV on hydrography.

Table 4 gives the depths in feet at which trawl hauls were taken at each station. Stations along the Canal axis (100; 104 to 108) have fairly uniform depth, since the hauls were made in the dredged channel. Stations in the upper Chesapeake Bay (101 to 103) were only about half as deep, and the shoal stations (H) and subtributary stations (A, B) were even shallower.



The time needed to complete each 0.5-mile tow is shown in Table 5. Although all tows covered a half-mile distance, the time required to finish the tow varied, depending upon the current direction and velocity. Comparisons can be made, for each station, between S and N, and between E and W.

#### Species Caught

During the present period, from December 1970 to May 1973, we caught a total of 43 species (including two varieties) of fish in the C and D Canal region by both the trawl and beach seine. Table 6 lists the common and scientific names of these fishes, listed in alphabetical order of common names.

The significance of the Canal to fish lives and the nature of habitat in the Canal region can be seen by the wide variety of species present. Of the 43 kinds caught, 5 are anadromous (spawn in freshwater and grow up in saltwater), 1 is catadromous (spawn in the ocean and grow up in freshwater), 10 are marine, 12 are estuarine or brackish water, and 15 are freshwater forms.

The presence of freshwater and estuarine species indicates that the Canal is used as residence of these species. The occurrence of marine forms proves that the Canal region is used either as a nursery for the young forms or as a feeding ground for the juvenile and adult forms. The fact that the Canal is frequented by both anadromous and catadromous species shows that this water is used as a migration route for both, and also as a spawning ground for the former and as a feeding ground for the latter.

Tables 7 and 8 are omitted.

### Seasonal Occurrence of Species

Of the total number of 43 species (including 2 varieties) caught by both otter trawl and beach seine, 41 were caught by otter trawl alone. The seasonal occurrence of these fishes is shown in Table 9, in which the incidence of catch only is indicated by an asterisk whenever it took place. As can be seen, the lowest incidence occurs in January and February of 1973, when 13 and 10 species, respectively, were caught. March and April are also relatively low in species incidence. The highest incidence is in August 1972 and October 1971, when 22 species were caught in one month. Species that were caught every month of the year were: brown bullhead, white catfish, channel catfish, hogchoker, Johnny darter, and white perch. Other species that were present nearly year round were: alewife, scaled carp, and blueback herring, every month but January and February; bay anchovy, every month but January to March; American eel, and striped bass, every month but February; and yellow perch, every month but September. It is likely that the above fishes were present at all times but missed being caught in certain particular months.

Species that occurred only occasionally, probably due to rareness rather than to seasonal were: striped blenny, in February only; white crappie, in March, May, and November; naked goby, in September only; goldfish, in June and December; Atlantic herring, in August; largemouth bass, in January and March; banded killifish, in June only; northern pipefish, in July, August, and October; tidewater silverside, in October only; rough silverside, in June only; golden shiner, in March, April, and December; fourspine stickleback, in December only; toadfish, in January only.

Still other species which appeared only occasionally can be grouped as seasonal visitors. These include the bluefish, in June, July, and October; croaker in May to December; silver perch, in August to November;



weakfish, in July to November; spot, in June to November; and hickory shad, in March and May.

#### Areal Distribution of Fish Species Caught

The Maryland portion of the C and D Canal region where we conducted fish surveys can be distinguished into several zones, each of which has some unique features. For the purpose of analyzing areal distribution of fish species in this region, we have grouped our sampling stations into four zones. Zone I includes stations 100 to 103, which are in the upper Chesapeake Bay outside of the Canal. Zone II includes stations 104, 105, and 106, which represent the dredged and shoal areas of the original Elk River. Zone III includes stations 105AB and 106AB, which are in the subtributaries, Bohemia River and Little Elk River. Zone IV includes stations 107 and 108, which are in the Canal proper.

Tables 10 to 13 summarize the incidence of species occurrence in the four zones. Zone I has the highest value, averaging 12.6 species per month. It is closely followed by Zone II and Zone III, which average, respectively, 11.7 and 11.1 species per month. Zone IV has the lowest value, averaging only 7.4 species per month.

Fig 2<sub>1</sub> through 2<sub>89</sub> mark the incidence of each fish species, by station and by month and year, caught during the trawl survey from December 1970 to May 1973. Only stations 100 to 108 (Maryland stations) are treated in these figures. Stations 109 to 116 are Delaware stations. Fish incidence at those stations is discussed in Appendix VII, but is not shown in these figures.

These figures give a graphical view of both seasonal and areal occurrence of each fish species presented. A brief discussion on each species follows.

Alewife - Fig. 2(1-4). Anadromous: adult entering streams in the spring to spawn; young remain in freshwater until late fall before migrating to saltwater. Caught from March through December and occurred at all stations.

American eel - Fig. 2(5-8). Catadromous: adult leaving freshwater for Ocean to spawn; young entering brackish and freshwater and live for several years. Caught year-round (except February) and occurred at all stations.

Atlantic croaker - Fig. 2(9-11). Once one of the most valuable and abundant food fishes in Maryland, now largely disappeared. Marine in habit, but young enter estuaries for nursery. Occurrence in the C and D Canal region spotty.

Atlantic herring - Fig. 2(12). Coastal marine; seldom appears in Chesapeake Bay. The August 1971 occurrence at the western entrance of the Canal was a rarity.



Atlantic menhaden - Fig. 2(13-15). Both adult and young present in Chesapeake Bay throughout the year. Not caught in the present survey, however, from December through April.

Banded killifish - Fig. 2(16). A freshwater species but invades slightly brackish water. Not normally caught by trawl nets. Caught only once in the Bohemia River during the entire survey.

Bay anchovy - Fig. 2(17-20). Ubiquitous from head to mouth of Chesapeake Bay. Year-round, although not caught in January and February in the present survey. They are small and fragile and escape through meshes easily.

Black drum - Fig. 2(21). Marine. Its occurrence in the Elk River in September and October 1971 is rare, and has been reported previously only once.

Blueback herring - Fig. 2(22-25). Similar to the alewife in being anadromous. Young caught at all stations during most of the year except in winter.

Bluefish - Fig. 2(26-27). Coastal marine, entering the Bay after prey such as menhaden. Its occurrence in the C and D Canal unusual and spotty.

Brown bullhead. Fig. 2(28-31). A freshwater species. It was caught at all stations in every month of the year.

Butterfish - Fig. 2(32). Marine. Its sole occurrence at Station 102 in October 1972 was rare.

Channel catfish - Fig. 2(33-36). A freshwater fish, but tolerant to some degree of salinity. Caught in every month and occurred at every station.

Gizzard shad - Fig. 2(37-40). More freshwater in habit than other river herrings, but its occurrence in the C and D Canal region not as common nor as often as the other river herrings.

Golden shiner - Fig. 2(41-43). Strictly a freshwater species. Caught only four times during the present survey: December, twice; March and April, each once.

Goldfish - Fig. 2(44-45). Another freshwater fish that were caught only rarely: December 1971 and June 1972.

Hogchoker - Fig. 2(46-49). Truly euryhaline, having a remarkable tolerance to salinity varying from freshwater to saltwater. Very common and abundant, caught in the present surveys at every station and in every month of the year.

Hickory shad - Fig. 2(50). A rather common river herring in the Chesapeake Bay, but was caught only twice (March and May 1973) during this survey.

Johnny darter - Fig. 2(51-54). A diminutive freshwater fish, but frequents brackish water. Caught year-round and at every station. Can be easily overlooked because of its size.

Largemouth bass - Fig. 2(55-56). A freshwater food fish, common in lakes and ponds. Its capture in March 1971 at Station 104 and in January 1973 at Station 102 was rather uncommon.

Note: Fig. 2(57) omitted.

Mirror carp - Fig. 2(58). A variety of the common carp, in which only a few rows of enlarged scales are present on the sides. Rather rare occurrence.

Naked goby - Fig. 2(59). A small, estuarine fish, reaching into freshwater. Normally not caught by otter trawls. Its occurrence in the Canal was rare.

Northern pipefish - Fig. 2(60-61). A common and abundant estuarine fish extending into freshwater habitat. It was caught in the C and D Canal only rarely during the summer.



Pumpkinseed - Fig. 2(62-65). A common freshwater fish. Caught only at selective stations in upper Chesapeake Bay stations and in Elk and Bohemia Rivers.

Rough silverside - Fig. 2(66). A relatively more saltwater fish. Its occurrence at Station 103 was very rare.

Scaled carp - Fig. 2(67-69). Freshwater in habit but somewhat tolerant to brackish water. Caught nearly at every station and in nearly every month.

Silver perch - Fig. 2(70-71). A common Chesapeake Bay fish, more abundant toward lower bay. Rare in upper bay. Its occurrence in the C and D Canal was uncommon.

Smallmouth bass - Fig. 2(72). A freshwater species. Rare in upper bay. Its occurrence only once in this survey at Station 103 speaks for its rarity here.

Note: Fig. 2(73) - Omitted.

Spot - Fig. 2 (74-75). One of the members of the drum family, but both adults and young ascend brackish and freshwater streams, and often taken in strictly fresh water. Caught in the present survey only from June to November.

Spottail shiner - Fig. 2(76-79). A small, freshwater minnow commonly found in freshwater streams. Although not abundant in the C and D Canal area, it was caught at every station in this survey.

Striped bass - Fig. 2(80-83). Occurred nearly year-round and caught at all stations. Adult caught mostly during winter and spring, and juveniles during summer and fall. This species uses the C and D Canal as spawning ground, nursery for larvae, feeding for young, and migration route for adults.

Fourspine stickleback - Fig. 2(84). Usually occur among vegetation. Its occurrence at Station 103 in December 1970 was represented by a single specimen.

Note: Fig. 2(85) omitted.

Tidewater silversides - Fig. 2(86-87). Very abundant in most of the Chesapeake Bay except the more freshwater part. Its occurrence in the C and D Canal area was very spotty.

Toadfish - Fig. 2(88). A common Chesapeake Bay fish but usually found in more saline waters. Its single appearance at Station 101 in January 1973 was very unusual. It was contained in a jar, obviously the fish was overwintering therein.

Weakfish - Fig. 2(89-90). One of the "sea trouts" whose young and adult alike visit the Chesapeake Bay for feeding. Caught only from July to November at nearly all stations.

White catfish - Fig. 2(91-94). Although a freshwater species, it often strays into brackish water. Occurred year-round; caught at every station but 108.

White crappie - Fig. 2(95-96). A freshwater fish common in inland waters. Its occurrence in this survey is uncommon.

White perch - Fig. 2 (97-100). The most abundant fish in the Chesapeake, as well as in this survey. Occurred year-round; caught at every station.

Yellow perch - Fig. 2 (101-104). A freshwater fish but invades brackish water. Common in the C and D Canal area: occurred at every station; caught virtually year-round.

#### Beach seining results

Beach seining was carried out in July, August, and October 1972 in this survey. A total of 23 species of fish were caught. Of these, 2 were not caught by trawling: Atlantic needlefish and mummichog. The Atlantic needlefish is common in the Chesapeake region, with the young especially abundant



and extending into freshwater areas. Its absence in our trawl catches can be accounted for by its surface feeding habit, thus not collected by a bottom net.

The mummichog is very common in the shallow, brackish-water coves and inlets of Chesapeake Bay, and is also found in freshwater. Its shallow habitat precluded it from being caught in trawl net.

Collection locations of all 23 beach seine caught species are shown in Fig. 3(1-24). They add nothing new to the areal distribution revealed by trawl survey (Fig. 2). A few remarks are pertinent on the following species.

The banded killifish, Fig. 3(5), like the mummichog, prefers shallow habitat. It was therefore found much more widespread than trawl catch indicated. For the same reason, the tidewater silversides, Fig. 3(21), was found more widespread by beach seine than by otter trawl, Fig. 2(86).

The black bass, Fig. 3(7), was a small (28 mm) fish, either a smallmouth or a largemouth, and was not identified to species.

Since 1956 the Fisheries Administration of the Maryland Department of Natural Resources, primarily for the purpose of evaluating year class strength of the striped bass, has conducted shore zone seining every year during the period from July to September at a total of 56 sites in all of Maryland's major tributaries to the Chesapeake Bay. Fish that were caught incidental to striped bass investigations were also recorded. The entire data have been tabulated by Roy F. Scott and Joseph G. Boone in mimeograph form\*, and a copy was kindly made available to us by the authors.

---

\* Roy F. Scott and Joseph G. Boone. Fish distribution in various areas of Maryland tidewater as derived from shore zone seining 1956-1972. Maryland Department of Natural Resources Data Report MFA 73-1. July 1, 1973.

Of Maryland's 56 sites, Nos. 3 to 11 are located in upper Chesapeake Bay and are pertinent to the present survey work (Fig. 8). We are therefore making excerpts of their data and presenting them below.

The beach seine had 1/4" square meshes, 100 feet long and 4 feet deep. At each site, two hauls were made per visit, with the second haul beginning 30 minutes after beaching of the first. Each site was visited once (2 hauls) in 1958-1961; twice (4 hauls) from 1962-1965, and thrice (6 hauls) from 1966-1972. All seining was done in July, August, and September.

In 17 years of seining at the above mentioned stations, they collected and identified a total of 50 fish species. A comparison of their catches with those of our trawl and beach seine can be seen in the list below:

Common name	Scientific name	Occur- rence	Md. FA	Present Survey	
			Beach Seine 1956-72	Beach Seine 1972	Trawl 1970-73
Alewife	<u>Alosa pseudoharengus</u>	A	x	x	x
American eel	<u>Anguilla rostrata</u>	C	x	x	x
American shad	<u>Alosa sapidissima</u>	A	x	-	-
Atlantic croaker	<u>Micropogon undulatus</u>	M	x	-	x
Atlantic herring	<u>Clupea harengus</u>	M	-	-	x
Atlantic menhaden	<u>Brevoortia tyrannus</u>	M	x	x	x
Atlantic needlefish	<u>Strongylura marina</u>	E	x	x	-
Atlantic silverside	<u>Menidia menidia</u>	E	x	-	-
Banded killifish	<u>Fundulus diaphanus</u>	F	x	x	x
Bay anchovy	<u>Anchoa mitchilli</u>	E	x	x	x
Black crappie	<u>Pomoxis nigromaculatus</u>	F	x	-	-



Black drum	<u>Pogonias cromis</u>	M	x	-	x
Blueback herring	<u>Alosa aestivalis</u>	A	x	x	x
Bluefish	<u>Pomatomus saltatrix</u>	M	x	-	x
Bluegill	<u>Lepomis macrochirus</u>	F	x	-	-
Bridle shiner	<u>Notropis bifrenatus</u>	F	x	-	-
Brown bullhead	<u>Ictalurus nebulosus</u>	F	x	-	x
Butterfish	<u>Peprilus triacanthus</u>	M	-	-	x
Cownose ray	<u>Rhinoptera bonasus</u>	M	x	-	-
Chain pickerel	<u>Esox niger</u>	F	x	-	-
Channel catfish	<u>Ictalurus punctatus</u>	F	x	x	x
Crevalle jack	<u>Caranx hippos</u>	M	x	-	-
Fourspine stickleback	<u>Apeltes quadracus</u>	E	x	-	x
Gizzard shad	<u>Dorosoma cepedianum</u>	A	x	x	x
Golden shiner	<u>Notemigonus crysoleucas</u>	F	x	x	x
Goldfish	<u>Carassius auratus</u>	F	x	-	x
Halfbeak	<u>Hyporhamphus</u> sp.	E	x	-	-
Harvest fish	<u>Peprilus alepidotus</u>	M	-	-	x
Hickory shad	<u>Alosa mediocris</u>	A	x	-	x
Hogchoker	<u>Trinectes maculatus</u>	E	x	x	x
Johnny darter	<u>Etheostoma nigrum</u>	F	x	x	x
Largemouth bass	<u>Micropterus salmoides</u>	F	x	x	x
*Mirror carp	<u>Cyprinus carpio</u>	F	-	-	x
Mummichog	<u>Fundulus heteroclitus</u>	E	x	x	-
Naked goby	<u>Gobiosoma boscii</u>	E	-	-	x
Northern pipefish	<u>Syngnathus fuscus</u>	E	x	-	x
Oyster toadfish	<u>Opsanus tau</u>	E	-	-	x
Pumpkinseed	<u>Lepomis gibbosus</u>	F	x	x	x

*Quillback	<u>Carpoides cyprinus</u>	F	x	-	-
Redbreast sunfish	<u>Lepomis auritus</u>	F	x	-	-
Rough silverside	<u>Membras martinica</u>	E	x	-	x
Satinfin shiner	<u>Notropis analostanus</u>	F	x	-	-
Scaled carp	<u>Cyprinus carpio</u>	F	x	x	x
Silver perch	<u>Bairdiella chrysura</u>	M	x	-	x
Silvery minnow	<u>Hybognathus nuchalis</u>	F	x	-	-
Smallmouth bass	<u>Micropterus dolomieu</u>	F	-	-	x
Spot	<u>Leiostomus xanthurus</u>	M	x	x	x
Spottail shiner	<u>Notropis hudsonius</u>	F	x	x	x
Striped anchovy	<u>Anchoa hepsetus</u>	E	x	-	-
Striped bass	<u>Morone saxatilis</u>	A	x	x	x
Striped blenny	<u>Chasmodes bosquianus</u>	E	-	-	x
Striped killifish	<u>Fundulus majalis</u>	E	x	-	-
Tidewater silversides	<u>Menidia beryllina</u>	E	x	x	x
Variegated minnow	<u>Cyprinodon variegatus</u>	F	x	-	-
Weakfish	<u>Cynoscion regalis</u>	M	x	-	x
White catfish	<u>Ictalurus catus</u>	F	x	-	x
White crappie	<u>Pomoxis annularis</u>	F	-	x	x
White perch	<u>Morone americana</u>	E	x	x	x
Yellow perch	<u>Perca flavescens</u>	F	x	x	x

---

\* - Variety

M - Marine

A - Anadromous

E - Estuarine

F - Freshwater

C - Catadromous



The Maryland Fisheries Administration data add 16 species of fish to the C and D Canal region, making the total list to 59 (including 1 variety). There are also 7 species and 1 variety that were caught by our trawl net but not by FA's beach seine.

From the 50 species of beach seine caught fish, the Maryland Fisheries Administration Report selects 13 fish of which the numbers were counted and tabulated. This information has been summarized and reorganized and presented in Tables 14 to 26 in the present report. For the alewife, American shad, blueback herring, spot, striped bass, and menhaden (1962-72), only 0-age fish were dealt with. For Atlantic needlefish, Atlantic silversides, Bay anchovy, mummichog, pumpkinseed, spottail shiner, white perch, and menhaden (1958-61), all ages of fish caught were counted.

#### Biomass of Fish Caught

Starting from the June 1971 survey, all the fish caught by the trawl were weighed, species by species. Tables 27(A-T) summarize the total weight in pounds per species caught on each station for each month sampled. All values have been reduced to "per-mile trawled." In all these tables ".00" means absence of fish; "T" means "trace," i.e., too little to be weighed. However, when ".00" fills the entire column it means that no sample was taken.

The last column of Tables 27(A-T) sums up the total weight for each species from all the stations combined at each cruise. Similarly, the bottom row sums up the total weight of all species for each station. With the exception of December 1972-Table 27(O), and February 1973-Table 27(Q), white perch dominated the catches in weight each month sampled. Its dominance is also manifest at all stations most of the time.

The dominance of white perch in our trawl catches is even more convincing when all the catches for each species are combined from all stations and all months sampled (Table 28). The total landed weight of 7,696 pounds for white perch nearly equals the combined total weight of all the remaining 38 species caught, which amounts to 8,135 pounds, and it is about 4.2 times greater than the next two most abundant species, i.e., the carp and bullhead.

Aside from the brown bullhead, two other members of the catfish family, namely the channel catfish and white catfish, are also major contributors to our catches. All these catfishes are foodfishes, and the channel catfish is highly esteemed at many parts of the country. It is the prime object of freshwater culture venture in some southeastern states. Unlike the white perch, which is ubiquitous in the area, the catfishes are dominant mainly in the two tributaries: upper Elk River (106AB) and Bohemia River (105AB).

The heavy contribution of the carp (scaled and mirror varieties combined) to our trawl catches is interesting; they were caught in the tributaries as well as in the canal. However, no carp was caught at Station 107 or 108.

The hogchoker is conspicuous by its relatively low position on the list (No. 7); conspicuous because it is second only (sometimes first) to the white perch in abundance in most of the bay areas. Since this fish prefers more brackish water, the relatively fresh water in the C and D Canal area probably accounts for its lack in great abundance here.

The low position of the striped bass (No. 8) on the list is no reflection of its true abundance in the area. Large, spawning adults are caught by commercial gillnets at Turkey Point and in the Canal, but these fish were seldom landed by trawling.



Table 29 summarizes the total weight of fish of all species caught at each station during each month of sampling. This Table indicates that May is the highest month of sampling followed closely by April, July, and August. The lowest catch months are January and February. In this Table, not all stations were sampled during each cruise. Therefore, to make a fair comparison, we have selected four stations (CD 101, 104, 105, and 106AB) where trawling was done each monthly period from June 1971 to May 1973 for data analysis. The combined catches, in pounds per mile trawled, of these four stations of all fish species caught for each month are shown in Fig. 5. Here again, May 1973 is the highest month. Other high months include April, August, and November. The lowest month is February 1973. Other low months include January, March and June.

The bottom row of totals in Table 29 shows station-to-station comparison of total catches of all species, in pounds per mile towed, from June 1971 to May 1973. All figures in Table 29 are converted into percentages in Table 30. When the total poundages for each station are calculated in terms of pounds per mile per sampling period, these mean values are shown in Figure 6. In this figure, Stations 100 to 103 are grouped as Zone 1 to represent the upper Chesapeake Bay region outside of the Canal entrance. Stations 104 to 106, with their accompanying shoal stations, are grouped into Zone 2 to represent the Elk River part of the Canal. Stations 105AB and 106AB into Zone 3 to represent the tributaries; and Stations 107 and 108 into Zone 4 to represent the artificial part of the Canal in Maryland side. It is quite obvious that the tributaries (Zone 3) are the most productive; the artificial canal (Zone 4), the least productive; and the other 2 zones intermediate between the two. These differences can be attributed to the fact that frequently disturbed bottoms by dredging activities are not conducive to habitation by ground fishes and their prey organisms.

The above conclusion is supported by three strong evidences. First, in Zone 1, Station 100, which is the channel, has smaller catches than the other three stations (101, 102, 103), which are not dredged. Second, all three shoal stations (h) have much higher catches than their respective channel stations (104, 105, 106). Third, the channel stations 107 and 108 have by far the smallest catches.

#### Numbers of Fish Caught

From the very first cruise, December 1970, to the very last cruise, May 1973, all the fish trawled were counted, either individually or by subsampling. The numbers of each species caught at each station during each monthly cruise are tabulated in Table 31 (A-X). This set of Tables is similar to that of Table 27 (A-T), except that the figures represent numbers of, rather than pounds, of fish caught and that it starts with December 1970 instead of June 1971.

Table 32 lists the species, in order of their numerical abundance, that were caught during our entire survey. This table should be compared with Table 28, in which the order of species is arranged according to total weight of fish caught. It must be pointed out that while white perch still remains at the top of the list, the rest of species undergoes a considerable shift in relative importance. This is due obviously to the relative sizes of the species involved. A large fish, like the carp, while occupying No. 2 position in weight caught, drops down to No. 17 on the numbers list. On the other hand, Bay anchovy, which is a tiny fish, while standing at No. 13 on the weight list, jumps to No. 2 position on the numbers list.

The above comparison points out the significance of weighing the catches. Weight, rather than number, is a better measure in considering the importance of each species, either economically or ecologically.

Table 33 shows the total numbers of all species of fish caught throughout the survey period and for each station. It should be pointed



out that results indicated here are not all consistent with those obtained from weight data, undoubtedly due to the fact that large species favor the weight consideration and small species favor the number consideration.

#### Length Frequencies

During each trawling survey, in addition to weighing and counting the different species of fish caught, we also measured the length of either all of the fish or a sub-sample. All the measurements are grouped in 10 mm groupings and the length frequencies are calculated in percentages. The length frequencies of 14 species are presented in Figs. 7-20, and are briefly discussed as follows:

Alewife - Fig. 7. Two major length groups are present. The large, adult group of over 8 inches, or 200 mm in length, is present only in March to May for the purpose of spawning. The smaller size groups consist of young alewives that are using the C and D Canal area as a nursery ground year round.

Anchovy - Fig. 8. All anchovy caught are within 4 inches or 100 mm in length, but they comprise both young and adult.

Atlantic croaker. Fig. 9. Two main length group of croakers were caught. The young, hatch-of-the-year group (less than 2 inches or 50 mm) migrates up from the ocean, using the Canal area as a nursery ground. The larger, juvenile group (4-7 inches or 100-170 mm), caught during the summer, uses the Canal as a feeding area. No adult croaker was caught.

Blueback herring - Fig. 10. As the alewife, this is an anadromous species that migrates into the freshwater to spawn in spring. Two major groups were caught: the larger, adult, spawning group between 8 and 12 inches (200-300 mm) that were caught from March to May; and the smaller, young to juvenile group that were present through most of the year.

Brown bullhead - Fig. 11. All sizes of this fish were caught, from the very young of 1.5 inches (40 mm) to the old of 14 inches (350 mm). This is a resident species, with all age groups represented. The exact numbers of age groups present cannot be determined by the length frequency graphs.

Channel catfish - Fig. 12. This is another resident catfish, covering a wide range of sizes from 1 inch (25 mm) to 20 inches (500 mm). All size groups were present year round.

Gizzard shad - Fig. 13. Three major length groups were present. The smallest group, under 4 inches (100 mm), was caught only occasionally in August and September. The medium size group, between 4 and 8 inches (100-200 mm), were caught from July through February. The largest group, up to 13 inches (325 mm), were caught in the winter (January to March), May, and again in the summer and fall (August to December). This fish spawn in early summer.

Hogchoker - Fig. 14. This is a resident species. Both young and adult were caught year round. Many age groups are present, but their number cannot be determined by length frequency graphs.

Johnny darter - Fig. 15. This is primarily a freshwater species, but found commonly in slightly brackish water. Most specimens caught were medium to large. The largest fish was over 4.5 inches (115 mm) in length, which is quite unusual for this species.

Menhaden - Fig. 16. Various sizes were caught; but the adult size, over 10 inches (250 mm) long was caught only once (in July 1971). This fish uses the Canal primarily as nursery and feeding grounds.

Striped bass - Fig. 17. This fish spawn, hatch, and grow in the Canal. Therefore, all sizes were caught year round. However, the large spawning



adults, often measuring more than 26 inches (660 mm) long, that come into the area during the spring spawning season largely escape capture by the trawl net. The largest bass caught by our trawl was only 14.5 inches (368 mm) in length. All the bass caught in the Canal with the trawl net consisted of age groups 0, I, and II only.

White catfish - Fig. 18. This is the largest of three catfish species caught in the Canal, with the longest reaching 20 inches (508 mm) in length. All sizes were caught virtually year round.

White perch - Fig. 19. Even though a wide range of size was represented in the catch, most of the fish caught were small to medium sized. Perch larger than 8 inches (203 mm) were encountered only infrequently.

Yellow perch - Fig. 20. This is a freshwater resident fish. Few small, hatch-of-the-year fish were caught. Adult fish of several age groups were caught year round.

#### SUMMARY

1. This fish survey was made primarily with a 25-foot otter trawl at monthly intervals from December 1970 to May 1973. A total of 24 monthly cruises were made covering all 12 months of the year. The survey was supplemented by beach seining in summer months of one year. In addition, beach seining data of 17 years by the Maryland Fish Administration were also studied.

2. Only the sampling stations located on Maryland side of the C and D Canal were studied. Those on the Delaware side were studied in a similar manner by the University of Delaware biologists, and they are reported in a separate paper (Appendix VII).

3. Sampling stations were 3 miles apart: 4 being located in upper Chesapeake Bay above and below the western entrance of the Canal; 5 in the Canal from Turkey Point to Maryland-Delaware border; and one each in upper Elk River and Bohemia River.

4. A total of 41 fish species were caught with the otter trawl. Our own beach seine effort yielded 23 species, 2 of which were not caught by the trawl. The 17 years of beach seine effort by the Maryland Fisheries Administration caught 50 species of fish, of which 16 were not caught by our own efforts. Therefore, a total of 59 fish species have been collected on the Maryland side of the C and D Canal region.

5. The C and D Canal region as a fish habitat can be evaluated not only by the relatively large number of species present, but by the varieties of fish lives. Of the 59 species present, 24 are freshwater fish, 12 marine, 16 brackish water or estuarine, 6 anadromous, and 1 catadromous.

6. Various life stages of fish from eggs to adults can be found in the Canal region. Anadromous species including the important striped bass and resident species spawn in the Canal. Their young use the area as a nursery ground. The young of many marine fishes also use this region as a nursery area. Juveniles and adults of many marine species migrate into this area for the purpose of feeding. The different age groups of fish are indicated by their length frequencies.

7. By far the most abundant fish in the Canal area is the white perch. It practically dominated the catches at all locations and in every month of the year. The total weight of white perch caught nearly equals the total weight of all other species caught combined. Three members of the catfish family, namely the brown bullhead, channel catfish and white catfish, are



prominent in the catches. Hogchokers, which are very abundant elsewhere in the bay, were found only in moderate amount.

8. The smallest catches are generally made during the colder months of the year, from December to March. Best catches are made from April to August.

9. The sampling stations in upper Elk River and Bohemia River (105AB and 106AB) consistently yielded the largest catches. The bottoms of these stations were not affected by Canal dredging. In the Elk River section that forms a part of the Canal, the shoal stations (104h, 105h, and 106h) which were not dredged invariably had much larger catches than the channel stations (104, 105, and 106) which were dredged. The stations in the artificial part of the Canal (107 and 108) had the smallest catches. The stations outside of Canal entrance (100, 101, 102, and 103) had intermediate catches, but among these four stations, the one that is in the channel (100) had the smallest catches.

10. The numbers of fish caught presents a different picture of relative abundance than that presented by the weights of fish. Although the white perch remains number one in both lists, all other species undergo complete shifts in relative abundance. This is because large fish such as carp accounts for a lot of weight but small in number, and small fish such as anchovy accounts for a large number but very little weight.

Discussion of effects of Canal  
Enlargement on fish fauna

The C and D Canal serves a multipurpose function for the various life stages of fishes from eggs to adults. Any effects of Canal enlargement upon fish fauna can be neutral, detrimental, or beneficial.

The anticipated change of flow rate as a result of enlargement is relatively small and it is not expected to affect migration of fishes through the Canal, because fish are good swimmers and they are quick to adapt to changed flow conditions. The anticipated change in salinity regime in the Canal is not big enough to affect brackish or estuarine species which are euryhaline. Nor would it affect marine species which use the Canal as nursery and feeding grounds. Strictly freshwater species may redistribute themselves within the Canal region.

Widening the waterway in the Elk River part of the Canal down to Poole's Island in upper Chesapeake Bay means that a larger area of substratum will be disturbed by initial dredging, as well as by subsequent maintenance dredging. Unstable bottom conditions are not conducive to flourish of benthos and consequently unfavorable for groundfish. A reduced abundance of fish fauna can be expected in the enlarged bottoms.

Some fish use the Canal as an overwintering area. The increased depth of the Canal should elevate bottom temperature during the winter and should therefore enhance the overwintering use by fishes.

Enlargement increases water volume in the Canal and as such increases the carrying capacity for fish eggs, larvae, young, and adult. The production of total biomass in the Canal should be enhanced.



Table 1. Summary of designated sampling stations code and location for the fish survey of the C & D Canal area.

Station Code	Location
CD 100	Md., Kent Co., Chesapeake Bay, off Betterton, Md.
CD 101	Md., Cecil Co., Chesapeake Bay, off Howell Pt.
CD 102	Md., Cecil Co., Susquehanna Flat, west of Turkey Pt.
CD 103	Md., Cecil Co., Susquehanna Flat, west of Bull Mt.
CD 104,H	Md., Cecil Co., Elk River, east of Turkey Pt.
CD 105,H	Md., Cecil Co., Elk River, off mouth of Bohemia R.
CD 105AB	Md., Cecil Co., Bohemia River, off Hack Pt.
CD 106,H	Md., Cecil Co., Elk River, off Old Town Pt.
CD 106AB	Md., Cecil Co., Elk River, off Little Welch Pt.
CD 107	Md., Cecil Co., C & D Canal, off Watty's Pt.
CD 108	Md., Cecil Co., C & D Canal, off Bethel Cemetery

TABLE 2. C & D CANAL TRAWL SURVEY  
SUMMARY OF WATER TEMPERATURES FOR EACH MONTH BY STATION

DATE	100S	100N	101S	101N	102S	102N	103S	103N	104S	104N	104H	105A	105B	105S	105N
12/70	000	000	044	000	039	000	041	000	047	047	000	000	000	000	045
	000	000	053	000	042	000	039	000	043	043	000	000	000	000	174
03/71	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
04/71	075	070	072	072	076	076	077	083	089	081	083	000	000	000	000
	075	070	071	069	075	074	076	083	082	077	093	000	000	000	000
05/71	000	000	000	000	000	000	000	000	000	000	000	194	195	205	190
	000	000	000	000	000	000	000	000	000	000	000	190	193	188	180
06/71	240	242	249	240	269	251	000	000	257	256	286	282	309*	293*	281
	241	244	246	240	261	250	000	000	253	256	273	282	296*	281	276
07/71	283	266	264	259	260	289	260	267	281	278	271	270	274	278	272
	273	264	261	259	259	281	260	265	269	271	268	269	269	269	270
08/71	259	271	268	258	253	254	253	254	000	000	000	233	253	246	267
	252	257	262	256	250	249	251	254	000	000	000	235	251	246	250
09/71	250	265	000	000	000	000	000	000	254	261	000	000	000	000	000
	251	250	000	000	000	000	000	000	253	250	000	000	000	000	000
10/71	179	179	182	180	178	177	177	177	178	179	179	179	180	179	178
	189	182	181	181	180	180	178	177	181	182	179	180	179	181	179
12/71	035	032	033	030	018	023	031	028	031	034	035	030	027	044	045
	057	053	038	040	028	028	027	026	031	039	035	028	027	044	045
03/72	049	049	047	047	039	042	056	053	056	057	055	054	056	052	048
	048	050	044	047	038	042	056	051	054	057	053	055	056	051	048
04/72	119	119	112	111	110	112	124	134	124	127	130	140	143	134	133
	117	113	112	111	110	110	124	129	124	127	130	134	143	130	133
05/72	185	183	184	183	196	193	196	113	189	190	195	193	194	185	185
	182	181	183	183	193	191	195	193	186	186	185	191	193	187	183
06/72	236	232	000	235	256	256	258	265	248	246	237	247	243	240	248
	227	226	000	225	222	229	226	229	228	231	232	245	234	228	231
07/72	221	222	220	217	234	226	222	222	231	242	238	265	259	231	233
	215	217	220	217	233	224	221	223	224	225	229	265	257	223	223
08/72	249	246	249	248	250	251	258	258	250	251	252	254	254	253	254
	249	246	248	242	249	250	256	256	250	249	251	245	245	246	246
10/72	189	189	194	194	187	190	186	190	192	195	196	193	190	191	195
	183	178	191	191	179	178	185	193	190	200	200	196	191	187	198
11/72	113	112	114	118	112	122	112	118	112	111	114	123	122	111	121
	119	119	120	129	117	119	118	117	121	119	115	120	120	124	125
12/72	011	010	006	006	004	004	009	011	005	007	003	003	005	010	009
	012	010	007	006	001	000	005	001	004	007	002	007	010	007	009
01/73	008	005	002	001	010	008	000	000	002	002	000	000	000	007	004
	000	000	000	000	010	008	000	000	002	001	000	000	000	010	004



2

VEY  
R EACH MONTH BY STATION

	104N	104H	105A	105B	105S	105N	105H	106A	106B	106W	106E	106H	107E	107W	108E	108W
	047	000	000	000	000	045	000	000	000	000	000	000	000	044	049	000
	043	000	000	000	000	174	000	000	000	000	036	000	000	045	049	000
	000	000	000	000	000	000	000	092	086	000	000	000	000	000	000	000
	000	000	000	000	000	000	000	092	081	000	000	000	000	000	000	000
	081	083	000	000	000	000	000	000	000	000	000	000	000	000	000	000
	077	093	000	000	000	000	000	000	000	000	000	000	000	000	000	000
	000	000	194	195	205	190	193	196	192	183	199	191	185	219	185	182
	000	000	190	193	188	180	186	191	186	182	183	185	184	202	175	177
	256	286	282	309*	293*	281	278	310*	295*	282	302*	281	270	270	263	258
	256	273	282	296*	281	276	275	298*	281	272	280	272	263	265	255	255
	278	271	270	274	278	272	288	293	280	270	276	265	277	280	275	269
	271	268	269	269	269	270	281	286	278	267	274	264	272	275	275	269
	000	000	233	253	246	267	000	266	269	000	000	236	269	282	245	248
	000	000	235	251	246	250	000	258	263	000	000	204	259	269	245	246
	261	000	000	000	000	000	000	000	000	256	264	000	257	255	256	250
	250	000	000	000	000	000	000	000	000	255	255	000	256	254	253	250
	179	179	179	180	179	178	177	175	184	175	178	179	180	180	179	178
	182	179	180	179	181	179	178	175	183	178	179	178	179	178	180	179
	034	035	030	027	044	045	036	037	042	039	038	044	046	045	046	048
	039	035	028	027	044	045	036	039	040	041	040	043	043	044	048	047
	057	055	054	056	052	048	048	060	057	052	051	052	056	056	059	059
	057	053	055	056	051	048	047	060	058	051	051	052	056	056	059	059
	127	130	140	143	134	133	137	128	129	129	129	131	130	133	124	128
	127	130	134	143	130	133	136	129	129	128	129	131	130	130	125	128
	190	195	193	194	185	185	183	178	179	184	184	183	191	184	180	180
	186	185	191	193	187	183	183	178	178	182	183	183	191	184	180	180
	246	237	247	243	240	248	248	250	244	236	236	240	238	243	232	232
	231	232	245	234	228	231	242	241	244	236	234	238	238	240	232	232
	242	238	265	259	231	233	234	249	248	237	237	239	232	231	229	228
	225	229	265	257	223	223	228	237	236	227	227	235	226	226	229	228
	251	252	254	254	253	254	250	241	243	251	246	245	245	245	248	249
	249	251	245	245	246	246	248	237	245	245	243	243	244	244	247	247
	195	196	193	190	191	195	194	190	190	190	187	184	197	191	198	198
	200	200	196	191	187	198	196	188	188	186	184	184	199	179	200	200
	111	114	123	122	111	121	115	115	114	126	121	121	114	108	115	114
	119	115	120	120	124	125	123	118	119	120	118	119	119	118	120	122
	007	003	003	005	010	009	005	008	008	010	008	007	008	007	018	018
	007	002	007	010	007	009	004	014	012	011	013	009	015	012	020	020
	002	000	000	000	007	004	000	000	003	000	000	000	000	000	002	005
	001	000	000	000	010	004	000	003	007	000	000	000	000	000	004	005

04/71	075	070	071	069	075	074	076	083	082	077	075	069	071	069
05/71	000	000	000	000	000	000	000	000	000	000	000	104	195	205
	000	000	000	000	000	000	000	000	000	000	000	190	193	188
06/71	240	242	249	240	269	251	000	000	257	256	286	282	309*	293*
	241	244	246	240	261	250	000	000	253	256	273	282	296*	281
07/71	283	266	264	259	260	289	260	267	281	278	271	270	274	276
	273	264	261	259	259	281	260	265	269	271	268	269	269	269
08/71	259	271	268	258	253	254	253	254	000	000	000	233	253	246
	252	257	252	256	250	249	251	254	000	000	000	235	251	246
09/71	250	265	000	000	000	000	000	000	254	261	000	000	000	000
	251	250	000	000	000	000	000	000	253	250	000	000	000	000
10/71	179	179	182	180	178	177	177	177	178	179	179	179	180	179
	189	182	181	181	180	180	178	177	181	182	179	180	179	181
12/71	035	032	033	030	018	023	031	028	031	034	035	030	027	044
	057	053	038	040	028	028	027	026	031	039	035	028	027	044
03/72	049	049	047	047	039	042	056	053	056	057	055	054	056	052
	048	050	044	047	038	042	056	051	054	057	053	055	056	051
04/72	119	119	112	111	110	112	124	134	124	127	130	140	143	134
	117	113	112	111	110	110	124	129	124	127	130	134	143	130
05/72	185	183	184	183	196	193	196	113	189	190	195	193	194	185
	182	181	183	183	193	191	195	193	186	186	185	191	193	187
06/72	236	232	000	235	256	256	258	265	248	246	237	247	243	240
	227	226	000	225	222	229	226	229	228	231	232	245	234	228
07/72	221	222	220	217	234	226	222	222	231	242	238	265	259	231
	215	217	220	217	233	224	221	223	224	225	229	265	257	223
08/72	249	246	249	248	250	251	258	258	250	251	252	254	254	253
	249	246	248	242	249	250	256	256	250	249	251	245	245	246
10/72	169	189	194	194	187	190	186	190	192	195	196	193	190	191
	183	178	191	191	179	178	185	193	190	200	200	196	191	187
11/72	113	112	114	118	112	122	112	118	112	111	114	123	122	111
	119	119	120	129	117	119	118	117	121	119	115	120	120	124
12/72	011	010	006	006	004	004	009	011	005	007	003	003	005	010
	012	010	007	006	001	000	005	001	004	007	002	007	010	007
01/73	008	005	002	001	010	008	000	000	002	002	000	000	000	007
	008	007	003	003	010	008	000	000	002	001	000	000	000	010
02/73	000	000	000*	001	000	000	000*	000*	002	001	001	005	006	006
	000	000	000*	002	000	000	001	001	004	004	001	007	006	004
03/73	078	074	078	076	078	079	000	080	073	073	072	060	063	072
	073	074	082	076	078	079	000	080	069	068	068	060	063	072
04/73	108	107	103	099	114	114	000	000	109	104	107	135	135	116
	107	100	098	097	114	114	000	000	104	104	105	135	135	114
05/73	167	166	167	166	164	160	000	000	171	178	174	181	173	000
	168	166	167	166	164	160	000	000	171	176	171	181	175	000

000 indicates not taken

000\* indicates observed value

\* suspicious value recorded.



[illegible]

TABLE 3. C & D CANAL TRAWL SURVEY  
SUMMARY OF SALINITIES FOR EACH MONTH BY STATION<sup>1</sup>

DATE	100S	100N	101S	101N	102S	102N	103S	103N	104S	104N	104H	105A	105B	105S	105N	106
12/70	000	000	006	000	007	000	003	000	001	001	000	000	000	000	009	0
	000	000	056	000	020	000	003	000	002	002	000	000	000	000	010	0
03/71	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	0
	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	0
04/71	005	004	004	004	004	005	002	003	006	005	006	000	000	000	000	0
	005	004	004	004	004	005	004	005	005	004	006	000	000	000	000	0
05/71	000	000	000	000	000	000	000	000	000	000	000	007	008	005	007	0
	000	000	000	000	000	000	000	000	000	000	000	008	007	007	006	0
06/71	012	012	012	013	010	009	000	000	007	009	009	011	011	012	016	0
	014	015	015	016	011	010	000	000	010	011	010	011	014	011	013	0
07/71	014	013	023	022	008	009	003	004	011	011	011	010	012	012	011	0
	020	013	032	024	008	011	003	003	014	014	010	010	011	016	010	0
08/71	010	009	012	014	004	005	004	005	000	000	000	010	008	013	010	0
	011	014	013	014	007	005	004	005	000	000	000	009	008	012	010	0
09/71	013	013	000	000	000	000	000	000	006	006	000	000	000	000	000	0
	020	024	000	000	000	000	000	000	006	017	000	000	000	000	000	0
10/71	034	034	036	035	020	019	009	012	034	033	039	011	012	031	031	0
	076	067	039	056	043	047	010	012	050	068	041	014	015	059	056	0
12/71	013	028	008	010	004	003	002	003	011	011	011	012	012	013	014	0
	064	059	025	028	005	006	004	003	010	024	011	012	012	013	013	0
03/72	004	005	005	004	000	002	005	003	004	003	004	007	008	006	005	0
	004	004	004	004	003	003	005	003	004	012	003	009	008	006	005	0
04/72	004	003	005	004	004	005	004	004	005	006	008	008	007	007	008	0
	004	003	005	004	004	005	004	004	005	006	008	008	007	007	008	0
05/72	003	003	003	003	003	004	003	003	004	004	004	005	005	005	004	0
	004	003	003	003	003	004	003	003	004	004	004	005	005	005	004	0
06/72	002	002	000	000	002	003	002	002	003	002	003	003	003	002	001	0
	003	002	000	001	002	002	002	002	003	003	003	004	004	002	001	0
07/72	001	001	001	001	001	001	001	001	001	001	001	000*	000*	001	001	0
	001	001	001	001	001	001	001	001	001	001	001	000*	000*	001	001	0
08/72	002	002	002	002	002	002	002	002	002	002	003	004	004	005	004	0
	002	002	002	002	002	002	002	002	002	002	003	004	004	039	061	0
10/72	031	031	038	038	025	018	010	009	032	038	036	046	047	040	046	0
	034	036	039	039	029	026	010	009	040	043	042	047	047	049	050	0
11/72	031	030	034	041	027	022	012	011	030	031	031	041	046	058	065	0
	042	035	046	027	030	033	012	010	045	047	034	042	052	076	075	0
12/72	001	001	002	001	001	001	001	000*	001	001	001	004	004	001	001	0
	001	001	002	001	001	001	001	000*	001	001	001	004	004	001	002	0



11 2

SURVEY  
H MONTH BY STATION<sup>1</sup>.

104S	104N	104H	105A	105B	105S	105N	105H	106A	106B	106S	106N	106H	107E	107W	108E	108W
001	001	000	000	000	000	009	000	000	000	000	012	000	000	033	031	000
002	002	000	000	000	000	010	000	000	000	000	012	000	000	033	033	000
000	000	000	000	000	000	000	000	007	006	000	000	000	000	000	000	000
000	000	000	000	000	000	000	000	007	011	000	000	000	000	000	000	000
006	005	006	000	000	000	000	000	000	000	000	000	000	000	000	000	000
005	004	006	000	000	000	000	000	000	000	000	000	000	000	000	000	000
000	000	000	007	008	005	007	007	016	015	010	009	006	019	015	021	021
000	000	000	008	007	007	006	007	016	017	013	014	006	020	016	021	021
007	009	009	011	011	012	016	015	016	016	006	000	016	017	019	021	019
010	011	010	011	014	011	013	014	016	017	015	017	015	018	019	021	019
011	011	011	010	012	012	011	012	028	025	024	021	038	029	022	057	044
014	014	010	010	011	016	010	012	028	027	038	039	040	045	044	057	053
030	000	000	010	008	013	010	000	005	012	000	000	013	011	012	013	012
030	030	000	009	008	012	010	000	006	013	000	000	014	013	013	014	013
036	006	030	000	000	000	000	000	000	000	007	006	000	006	007	007	016
006	017	000	000	000	000	000	000	000	000	007	006	000	007	008	007	019
034	033	039	011	012	031	031	032	012	019	029	029	029	029	031	026	027
050	068	041	014	015	059	056	033	013	029	033	031	029	030	032	027	028
011	011	011	012	012	013	014	010	011	011	011	011	012	011	013	012	012
010	024	011	012	012	013	013	010	011	013	012	010	012	013	045	012	012
004	003	004	007	008	006	005	004	005	006	005	012	005	008	008	009	009
004	012	003	009	008	006	005	004	005	006	005	005	005	008	008	008	008
005	006	008	008	007	007	008	008	008	008	008	008	007	007	007	005	007
005	006	008	008	007	007	008	007	008	008	008	007	007	007	007	006	007
004	004	004	005	005	005	004	006	005	005	005	005	005	003	004	004	004
004	004	004	005	005	005	004	006	005	005	005	005	005	003	004	004	004
003	002	003	003	003	002	001	003	002	002	002	002	002	003	002	005	005
003	003	003	004	004	002	001	003	004	002	003	003	002	002	003	005	005
001	001	001	000*	000*	001	001	001	001	001	001	001	001	001	001	001	001
001	001	001	000*	000*	001	001	001	001	001	001	001	001	001	001	001	001
002	002	003	004	004	005	004	004	011	012	006	012	008	050	050	029	025
002	002	003	004	004	039	061	004	011	026	045	043	018	052	052	032	025
032	038	036	046	047	040	046	039	050	050	041	042	040	052	051	077	077
040	043	042	047	047	049	050	045	053	053	047	049	044	053	051	078	078
030	031	031	041	046	058	065	051	065	068	056	054	058	068	065	081	076
045	047	034	042	052	076	075	070	067	065	064	064	061	069	068	081	076
001	001	001	004	004	001	001	001	001	001	001	001	002	001	001	011	011
001	001	001	004	004	001	002	001	001	001	001	001	002	001	001	011	011
003	003	000	000	000	003	003	000	002	003	000	000	000	000	000	004	000

05/71	005	004	004	004	004	005	004	005	005	004	006	000	000	000	000
05/71	000	000	000	000	000	000	000	000	000	000	000	007	008	005	007
	000	000	000	000	000	000	000	000	000	000	000	008	007	007	006
06/71	012	012	012	013	010	009	000	000	007	009	009	011	011	012	016
	014	015	015	016	011	010	000	000	010	011	010	011	014	011	013
07/71	014	013	023	022	008	009	003	004	011	011	011	010	012	012	011
	020	013	032	024	008	011	003	003	014	014	010	010	011	016	010
08/71	010	009	012	014	004	005	004	005	000	000	000	010	008	013	010
	011	014	013	014	007	005	004	005	000	000	000	009	008	012	010
09/71	013	013	000	000	000	000	000	000	006	006	000	000	000	000	000
	020	024	000	000	000	000	000	000	006	017	000	000	000	000	000
10/71	034	034	036	035	020	019	009	012	034	033	039	011	012	031	031
	076	067	039	056	043	047	010	012	050	068	041	014	015	059	056
12/71	013	028	008	010	004	003	002	003	011	011	011	012	012	013	014
	064	059	025	026	005	006	004	003	010	024	011	012	012	013	013
03/72	004	005	005	004	004	002	005	003	004	003	004	007	008	006	005
	004	004	004	004	003	003	005	003	004	012	003	009	008	006	005
04/72	004	003	005	004	004	005	004	004	005	006	008	008	007	007	008
	004	003	005	004	004	005	004	004	005	006	008	008	007	007	008
05/72	003	003	003	003	003	004	003	003	004	004	004	005	005	005	004
	004	003	003	003	003	004	003	003	004	004	004	005	005	005	004
06/72	002	002	000	000	002	003	002	002	003	002	003	003	003	002	001
	003	002	000	001	002	002	002	002	003	003	003	004	004	002	001
07/72	001	001	001	001	001	001	001	001	001	001	001	000*	000*	001	001
	001	001	001	001	001	001	001	001	001	001	001	000*	000*	001	001
08/72	002	002	002	002	002	002	002	002	002	002	002	003	004	004	004
	002	002	002	002	002	002	002	002	002	002	002	003	004	004	004
10/72	031	031	038	038	025	018	010	009	032	038	036	046	047	040	046
	034	036	039	039	029	026	010	009	040	043	042	047	047	049	050
11/72	031	030	034	041	027	022	012	011	030	031	031	041	046	058	065
	042	035	046	027	030	033	012	010	045	047	034	042	052	076	075
12/72	001	001	002	001	001	001	001	000*	001	001	001	004	004	001	001
	001	001	002	001	001	001	001	000*	001	001	001	004	004	001	002
01/73	004	006	006	005	003	003	000	000	003	003	000	000	000	003	003
	004	005	015	012	003	003	000	000	004	003	000	000	000	004	003
02/73	000	000	000*	000*	000	000	000*	000*	001	000*	000*	000*	000*	000*	000*
	000	000	000*	000*	000	000	000*	000*	000*	000*	000*	000*	000*	000*	000*
03/73	000*	000*	000*	001	000*	000*	000	000*	000*	000*	000*	011	013	002	001
	000*	001	000*	001	000*	000*	000	000*	000*	000*	000*	001	011	011	002
04/73	000*	000*	000*	000*	000*	000*	000	000	000*	000*	000*	003	003	000*	000*
	000*	000*	000*	000*	000*	000*	000	000	000*	000*	000*	004	004	000*	000*
05/73	002	001	001	001	000*	002	000	000	002	001	001	004	003	000	003
	002	001	000*	001	002	002	000	000	002	003	001	004	005	000	003

1. Salinities need decimal placed before last digit.

000 indicates not taken.

000\* indicates observed value.



004	006	000	000	000	000	000	000	000	000	000	000	000	000	000	000
000	000	007	008	005	007	007	016	015	010	009	006	019	015	021	021
000	000	008	007	007	006	007	016	017	013	014	006	020	016	021	021
009	009	011	011	012	016	015	016	016	006	000	016	017	019	021	019
011	010	011	014	011	013	014	016	017	015	017	015	018	019	021	019
011	011	010	012	012	011	012	028	025	024	021	038	029	022	057	044
014	010	010	011	016	010	012	028	027	038	039	040	045	044	057	053
000	000	010	008	013	010	000	005	012	000	000	013	011	012	013	012
000	000	009	008	012	010	000	006	013	000	000	014	013	013	014	013
006	000	000	000	000	000	000	000	000	007	006	000	006	007	007	016
017	000	000	000	000	000	000	000	000	007	006	000	007	008	007	019
033	039	011	012	031	031	032	012	019	029	029	029	029	031	026	027
068	041	014	015	059	056	033	013	029	033	031	029	030	032	027	029
011	011	012	012	013	014	010	011	011	011	011	012	011	013	012	012
024	011	012	012	013	013	010	011	013	012	010	012	013	045	012	012
003	004	007	008	006	005	004	005	006	005	012	005	008	008	009	009
012	003	009	008	006	005	004	005	006	005	005	005	008	008	008	008
006	008	008	007	007	008	008	008	008	008	008	007	007	007	005	007
006	008	008	007	007	008	007	008	008	008	007	007	007	007	006	007
004	004	005	005	005	004	006	005	005	005	005	005	003	004	004	004
004	004	005	005	005	004	006	005	005	005	005	005	003	004	004	004
002	003	003	003	002	001	003	002	002	002	002	002	003	002	005	005
003	003	004	004	002	001	003	004	002	003	003	002	002	003	005	005
001	001	000*	000*	001	001	001	001	001	001	001	001	001	001	001	001
001	001	000*	000*	001	001	001	001	001	001	001	001	001	001	001	001
002	003	004	004	005	004	004	011	012	006	012	008	050	050	029	025
002	003	004	004	039	061	004	011	026	045	043	018	052	052	032	029
038	036	046	047	040	046	039	050	050	041	042	040	052	051	077	077
043	042	047	047	049	050	045	053	053	047	049	044	053	051	078	078
031	031	041	046	058	065	051	065	068	056	054	058	068	065	081	076
047	034	042	052	076	075	070	067	065	064	064	061	069	068	081	076
001	001	004	004	001	001	001	001	001	001	001	002	001	001	011	011
001	001	004	004	001	002	001	001	001	001	001	002	001	001	011	011
003	000	000	000	003	003	000	002	003	000	000	000	000	000	004	004
003	000	000	000	004	003	000	002	003	000	000	000	000	000	000*	004
000*	000*	000*	000*	000*	000*	001	002	003	002	000*	001	002	003	005	004
000*	000*	000*	000*	000*	000*	001	003	003	002	000*	001	002	002	005	004
000*	000*	011	013	002	001	002	001	002	002	003	002	002	002	004	003
000*	001	011	011	002	002	002	001	002	002	003	002	002	002	003	004
000*	000*	003	003	000*	000*	000*	000*	001	000*	000*	001	000*	000*	000	000
000*	000*	004	004	000*	000*	000*	000*	001	000*	004	000*	000*	000*	000	000
001	001	004	003	000	003	002	003	003	003	004	003	004	004	000	000
003	001	004	005	000	003	003	003	003	003	003	003	005	004	000	000

TABLE 4. C & D CANAL TRAWL SURVEY  
SUMMARY OF DEPTHS BY STATION<sup>1</sup>.

DATE	100S	100N	101S	101N	102S	102N	103S	103N	104S	104N	104H	105A	105B	105S	105N	105H
12/70	000	000	045	045	021	020	000	023	037	034	018	000	000	038	037	02
03/71	000	000	017	017	022	023	016	013	033	000	000	010	000	000	000	00
04/71	022	034	020	016	021	023	019	019	039	040	014	000	000	033	033	01
05/71	037	016	015	015	017	018	017	014	036	035	020	015	015	038	037	01
06/71	041	040	015	015	024	019	000	017	038	036	016	013	010	032	034	00
07/71	039	039	015	017	022	022	009	010	038	035	012	012	012	033	035	00
08/71	039	040	015	015	021	022	008	009	034	036	009	015	010	033	034	00
09/71	040	040	018	017	028	026	008	009	040	036	015	012	013	035	036	01
10/71	040	040	017	017	027	022	012	007	035	036	011	011	012	035	034	00
12/71	041	039	017	018	020	020	008	005	041	038	013	012	015	036	034	01
03/72	042	040	016	017	021	024	015	017	032	037	015	015	013	037	036	01
04/72	042	041	016	009	020	017	015	016	036	036	013	013	013	036	035	01
05/72	041	041	016	015	020	022	009	009	038	036	014	012	013	034	035	01
06/72	042	043	016	016	022	027	016	017	036	039	012	013	015	035	035	01
07/72	034	035	015	014	022	025	014	013	036	036	011	011	013	027	033	01
08/72	034	035	015	014	022	025	013	014	034	032	010	015	015	033	035	00
10/72	038	040	017	017	025	025	017	017	038	040	017	025	028	035	035	01
11/72	042	042	017	017	030	025	017	015	042	042	010	015	017	035	035	01
12/72	037	038	015	014	023	025	014	014	037	036	012	011	012	034	035	01
01/73	035	040	018	018	028	028	000	000	041	041	000	000	000	037	038	00
02/73	000	000	020	020	000	000	025	025	040	040	018	015	015	038	038	01
03/73	042	042	017	017	025	022	000	015	042	040	012	019	019	035	035	01
04/73	042	042	018	018	025	025	000	000	040	040	015	015	015	038	035	01
05/73	040	040	020	020	025	025	000	000	030	030	017	016	016	000	042	01

1. Values in feet.

000 indicates not taken.



11 2

SURVEY

AS	104N	104H	105A	105B	105S	105N	105H	106A	106B	106S	106N	106H	107E	107W	108E	108
7	034	018	000	000	038	037	020	000	000	039	040	018	000	043	042	043
3	000	000	010	000	000	000	000	006	007	039	037	013	039	037	038	043
9	040	014	000	000	033	033	018	000	000	038	036	020	038	037	037	037
6	035	020	015	015	038	037	015	010	011	041	040	012	037	040	038	037
8	036	016	013	010	032	034	006	007	007	036	038	011	037	036	039	039
8	035	012	012	012	033	035	008	012	012	037	039	007	038	038	030	041
4	036	009	015	010	033	034	000	010	008	039	038	008	034	037	039	041
0	036	015	012	013	035	036	010	010	011	037	039	012	042	042	033	033
5	036	011	011	012	035	034	009	010	010	043	040	010	039	039	038	038
1	038	013	012	015	036	034	017	010	010	037	042	013	042	043	043	037
2	037	015	015	013	037	036	014	011	011	043	040	011	036	042	040	042
6	036	013	013	013	036	035	012	010	012	040	041	015	043	043	041	044
8	036	014	012	013	034	035	010	007	011	040	040	008	040	041	033	042
6	039	012	013	015	035	035	010	008	007	042	041	010	042	040	039	035
6	036	011	011	013	027	033	010	009	011	040	040	011	042	041	042	040
4	032	010	015	015	033	035	009	009	012	037	040	008	040	040	042	044
8	040	017	025	028	035	035	015	015	015	042	042	015	042	042	042	042
42	042	010	015	017	035	035	010	014	015	042	042	012	042	042	042	042
7	036	012	011	012	034	035	010	010	011	036	039	010	043	043	040	041
1	041	000	000	000	037	038	000	015	015	000	000	000	000	000	042	042
0	040	018	015	015	038	038	020	012	012	042	042	012	042	042	045	042
2	040	012	019	019	035	035	015	015	015	040	040	015	042	042	042	042
0	040	015	015	015	038	035	015	012	012	042	042	015	042	042	000	000
30	030	017	016	016	000	042	017	015	015	042	042	012	042	042	000	000

TABLE 5. C & D CANAL TRAWL SURVEY  
SUMMARY OF DURATIONS OF TOWS BY STATION IN MINUTES

DATE	100S	100N	101S	101N	102S	102N	103S	103N	104S	104N	104H	105A	105B	105S	105N	106N
12/70	0	0	10	11	11	8	15	7	7	14	13	0	0	18	13	1
03/71	0	0	17	12	27	22	17	18	0	16	0	10	0	0	0	
04/71	9	11	8	8	10	5	10	10	10	12	8	0	0	14	14	
05/71	10	10	14	15	9	11	10	13	10	10	10	9	10	13	8	
06/71	9	10	10	10	10	10	0	8	6	12	12	8	8	8	12	
07/71	8	8	9	6	11	7	7	6	10	7	6	9	5	8	8	
08/71	8	11	9	5	9	8	7	6	13	8	5	10	8	8	7	
09/71	8	13	9	11	10	12	9	7	10	7	7	9	8	11	8	
10/71	8	9	9	9	9	10	10	8	11	9	9	10	8	8	9	
12/71	9	8	13	14	9	12	9	10	6	19	8	10	10	4	16	
03/72	8	18	13	16	8	4	8	12	7	14	10	5	11	16	8	
04/72	8	16	9	13	14	15	7	10	7	10	11	8	12	9	16	
05/72	8	14	8	16	11	8	11	8	8	13	8	10	7	8	12	
06/72	8	11	8	10	13	10	11	8	11	6	8	8	9	12	7	
07/72	6	12	7	10	7	9	10	11	9	10	9	11	8	9	15	
08/72	10	11	10	13	12	11	9	11	6	14	8	9	15	12	5	
10/72	7	17	6	7	12	14	8	11	11	9	8	9	13	16	9	
11/72	5	9	35	10	7	9	6	7	7	10	10	10	8	6	15	
12/72	7	13	9	11	9	10	5	8	11	7	7	11	9	12	7	
01/73	9	16	7	10	14	12	0	0	5	7	0	0	0	10	10	
02/73	0	0	7	10	0	0	12	10	11	10	12	14	11	19	8	
03/73	10	20	10	14	11	10	0	5	9	14	12	13	15	14	12	
04/73	9	17	8	12	8	9	0	0	11	15	11	11	15	12	12	
05/73	9	21	9	16	6	9	0	0	13	18	10	15	13	0	37*	

\*. Trawl stuck in mud  
0 indicates not taken



2

SURVEY  
STATION IN MINUTES

104S	104N	104H	105A	105B	105S	105N	105H	106A	106B	106S	106N	106H	107E	107W	108E	108N
7	14	13	0	0	18	13	10	0	0	8	14	14	4	15	9	12
0	16	0	10	0	0	0	0	18	12	7	10	10	13	11	5	7
10	12	8	0	0	14	14	12	0	0	11	9	9	8	11	7	9
10	10	10	9	10	13	8	9	10	7	8	7	10	10	10	9	8
6	12	12	8	8	8	12	5	8	8	6	7	8	8	16	6	10
10	7	6	9	5	8	8	10	14	11	5	23	8	20	12	7	12
13	8	5	10	8	8	7	7	12	22	15	5	9	6	18	10	13
10	7	7	9	8	11	8	10	12	7	19	7	10	7	17	7	0
11	9	9	10	8	8	9	8	8	9	10	22	7	11	22	8	17
6	19	8	10	10	4	16	11	7	9	9	8	8	11	6	12	7
7	14	10	5	11	16	8	10	10	10	9	18	12	7	5	10	5
7	10	11	8	12	9	16	7	9	9	9	9	8	5	22	6	26
8	13	8	10	7	8	12	7	11	7	8	13	8	7	14	6	13
11	6	8	8	9	12	7	8	8	8	11	7	11	5	16	6	14
9	10	9	11	8	9	15	9	10	6	7	13	7	10	12	6	13
6	14	8	9	15	12	5	12	11	8	12	8	10	14	7	6	11
11	9	8	9	13	16	9	10	8	10	15	13	11	10	23	14	10
7	10	10	10	8	6	15	6	10	9	7	10	8	10	13	10	12
11	7	7	11	9	12	7	6	8	8	6	13	7	14	10	8	17
5	7	0	0	0	10	10	0	11	10	0	0	0	0	0	8	21
11	10	12	14	11	19	8	9	12	12	14	20	15	10	30	12	15
9	14	12	13	15	14	12	10	9	15	15	9	9	8	21	10	23
11	15	11	11	15	12	12	11	11	16	11	14	15	15	11	0	0
13	18	10	15	13	0	37*	13	14	10	6	16	11	13	8	0	0

Table 6. Common and scientific names of the fish species encountered during the Maryland C & D Canal Fish Survey, December 1970 to May 1973.

Common name	Occurrence*	Scientific name
Alewife	A	<u>Alosa pseudoharengus</u>
American eel	C	<u>Anguilla rostrata</u>
Atlantic croaker	M	<u>Micropogon undulatus</u>
Atlantic herring	M	<u>Clupea harengus harengus</u>
Atlantic menhaden	M	<u>Brevoortia tyrannus</u>
Atlantic needlefish	E	<u>Strongylura marina</u>
Banded killifish	E	<u>Fundulus diaphanus</u>
Bay anchovy	E	<u>Anchoa mitchilli</u>
** Black bass	M	<u>Micropterus</u> sp.
Black drum	M	<u>Pogonias cromis</u>
Blueback herring	A	<u>Alosa aestivalis</u>
Bluefish	M	<u>Pomatomus saltatrix</u>
Brown bullhead	F	<u>Ictalurus nebulosus</u>
Butterfish	M	<u>Peprilus triacanthus</u>
Channel catfish	F	<u>Ictalurus punctatus</u>
Fourspine stickleback	E	<u>Apeltes quadracus</u>
Gizzard shad	A	<u>Dorosoma cepedianum</u>
Golden shiner	F	<u>Notemigonus crysoleucas</u>
Goldfish	F	<u>Carassius auratus</u>
Harvestfish	M	<u>Peprilus paru</u>
Hickory shad	A	<u>Alosa mediocris</u>
Hogchoker	E	<u>Trinectes maculatus</u>
Johnny darter	P	<u>Etheostoma nigrum</u>
Largemouth bass	F	<u>Micropterus salmoides</u>
** Mirror carp	P	<u>Cyprinus carpio</u>
Mummichog	E	<u>Fundulus heteroclitus</u>
Naked goby	F	<u>Gobiosoma boscii</u>
Northern pipefish	E	<u>Syngnathus fuscus</u>
Pumpkinseed	F	<u>Lepomis gibbosus</u>
Rough silversides	E	<u>Membras martinica</u>
Scaled carp	F	<u>Cyprinus carpio</u>
Silver perch	M	<u>Bairdjella chrysura</u>
Smallmouth bass	F	<u>Micropterus dolomieu</u>
Spot	M	<u>Leiostomus xanthurus</u>
Spottail shiner	F	<u>Notropis hudsonius</u>
Striped bass	A	<u>Morone saxatilis</u>
Striped blenny	E	<u>Chasmodes bosquianus</u>
Tidewater silversides	E	<u>Menidia beryllina</u>
Toadfish	E	<u>Opsanus tau</u>
Weakfish	M	<u>Cynoscion regalis</u>
White catfish	F	<u>Ictalurus catus</u>
White crappie	F	<u>Pomoxis annularis</u>
White perch	E	<u>Morone americana</u>
Yellow perch	F	<u>Perca flavescens</u>

\* A - Anadromous  
C - Catadromous  
M - Marine

E - Estuarine  
F - Freshwater

\*\* - Variety



TABLE 9. C & D CANAL TRAWL SURVEY  
SUMMARY OF SPECIES INCIDENCE BY MONTH

SPECIES	JAN 70/1/2/3	FEB 70/1/2/3	MAR 70/1/2/3	APR 70/1/2/3	MAY 70/1/2/3	JUN 70/1/2/3	JUL 70/1/2/3 70/
Alewife			*	* * *	* * *	* *	*
Bay anchovy				*	* * *	*	* *
Striped blenny		*					
Bluefish						*	*
Brown bullhead	*	*	* * *	* * *	* * *	* *	* *
Butterfish							
Atlantic croaker					*		*
Scaled carp			* *	* * *	* * *	* *	* *
Mirror carp							
White catfish	*	*	* * *	* * *	* * *	*	* *
Channel catfish	*	*	* * *	* * *	* * *	* *	* *
White crappie			*		*		
Black drum							
American eel	*		* * *	* *	* * *	* *	* *
Gizzard shad	*	*	*		*		
Naked goby							
Goldfish						*	
Atlantic herring							
Blueback herring			* *	* *	* * *	* *	*
Harvest fish							
Hickory shad			*		*		
Hogchoker	*	*	* * *	* * *	* * *	* *	* *
Johnny darter	*	*	* * *	* * *	*	* *	* *
Largemouth bass	*		*				
Smallmouth bass							
Atlantic menhaden					* *	* *	* *
Mummichog						*	
Northern pipefish							*
Silver perch							
Weakfish							*
Tidewater silversides							
Rough silversides						*	
Spottail shiner	*	*	* * *	* *	* *	* *	* *
Golden shiner			*	*			
Spot						* *	*
Fourspine stickle-							
Striped bass back	*		* * *	* * *	* * *	* *	* *
Pumpkinseed			* *	*	* * *	* *	
Oyster toadfish	*						
White perch	*	*	* * *	* * *	* * *	* *	* *

**SURVEY  
BY MONTH**

2

	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
/3	70/1/2/3	70/1/2/3	70/1/2/3	70/1/2/3	70/1/2/3	70/1/2/3	70/1/2/3	70/1/2/3
*	* * *	* *	*	* *	*	* *	*	* *
	* * *	*	* *	* *	*	* *	*	* *
*	* * *	* *	* *	* *	*	* *	*	* * *
	*		*	*		*	*	* *
*	* * *	* *	* *	* *	*	* *	*	* *
*	* * *	*	* *	* *	*	*	*	* *
*	* * *	* *	* *	* *	*	* *	*	* * *
	*				*	*	*	
*	* * *	* *	* *	* *	*	* *	*	* * *
	*				*	*	*	
*	* * *	* *	*	*	*	* *	*	* *
	*				*	*		
*	* * *	* *	* *	* *	*	* *	*	* * *
*	*	* *	* *	* *	*	* *	*	* * *
	* *	* *	* *	* *	*	* *	*	*
			*	*				
				*	*	*	*	
				*		*		
				*	*	*		
	* *	* *	* *	* *	*	* *	*	* * *
			*	*	*	*	*	* *
*	* * *	* *	* *	* *	*	* *	*	* * *
*	* * *	* *	* *	* *	*	*	*	* * *
*	* * *	* *	* *	* *	*	* *	*	* * *



TABLE 10. C & D CANAL  
SPECIES INCIDENCE BY ZONE

ZONE	SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
I	NAME	70/1/2/3	70/1/2/3	70/1/2/3	70/1/2/3	70/1/2/3	70/1/2/3	70/1/2/3	70/1/2/3
	Alewife			**	***	***	**	*	**
	Bay anchovy					*	*	*	*
	Brown bullhead	*	*	**	***	***	**	**	**
	Butterfish								
	Scaled carp			*		*	**	**	**
	Mirror carp								*
	White catfish	*		***	* *	*	*		*
	Channel catfish	*	*	***	***	***	**	**	**
	White crappie			*		*			
	Atlantic croaker								
	American eel			***	**	***	**	**	*
	Gizzard shad	*	*	*					**
	Goldfish								*
	Atlantic herring								*
	Blueback herring					**	**	*	*
	Hickory shad					*			
	Hogchoker	*		***	***	***	**	**	**
	Johnny darter			***	**	*			*
	Largemouth bass	*							
	Smallmouth bass								
	Atlantic menhaden						*	**	**
	Weakfish								
	Tidewater silverside								
	Rough silverside						*		
	Spottail shiner	*	*	***	**	**	**	**	**
	Golden shiner				*				
	Spot						*	*	**
	Striped bass	*		***	***	***	**	**	**
	Pumpkinseed				*	***	*		**
	Oyster toadfish	*							
	White perch	*	*	***	***	***	**	**	**
	Yellow perch	*	*	***	***	*	**	*	*
	TOTALS	11	7	11 11 12	11 10 10	12 13 10	14 14	12 11	15 17





TABLE 11. C & D CANAL  
SPECIES INCIDENCE BY ZONE

ZONE II	SPECIES NAME	JAN 70/1/2/3	FEB 70/1/2/3	MAR 70/1/2/3	APR 70/1/2/3	MAY 70/1/2/3	JUN 70/1/2/3	JUL 70/1/2/3	AUG 70/1/2/3
	Alewife			*	***	* *	*	*	*
	Bay anchovy.					***	*	*	**
	Bluefish								
	Brown bullhead		*	***	***	***	**	**	**
	Scaled carp			*	*		**	*	**
	White catfish	*	*	* *	***	**	*	**	*
	Channel catfish	*	*	***	***	***	**	**	**
	Atlantic croaker					*			*
	Black drum								
	American eel			**	**	***	**	**	**
	Gizzard shad		*			*			*
	Goldfish						*		
	Johnny darter								
	Atlantic herring								*
	Blueback herring				*	***		*	*
	Hickory shad			*		*			
	Hogchoker		*	**	***	***	**	**	**
	Johnny darter		*	***	**		*	**	*
	Largemouth bass			*					
	Atlantic menhaden					**	**	**	**
	Northern pipefish								
	Silver perch								
	Weakfish							*	**
	Tidewater silversides	*							
	Spottail shiner			**			*		*
	Golden shiner			*					
	Spot						*	*	**
	Fourspine stickleback								
	Striped bass	*		* *	***	***	**	*	**
	Pumpkinseed			*					
	White perch	*	*	***	***	***	**	**	**
	Yellow perch	*	*	***	* *	*	**	**	*
	TOTALS	5	9	9 9 13	10 8 11	9 11 14	11 14	10 9	10 15

2

2/3	MAY 70/1/2/3	JUN 70/1/2/3	JUL 70/1/2/3	AUG 70/1/2/3	SEP 70/1/2/3	OCT 70/1/2/3	NOV 70/1/2/3	DEC 70/1/2/3
-----	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------

*	* *	*	*	*	*	* *	*	* *
	* * *	*	*	* *	*	* *	*	*
						*		
*	* * *	* *	* *	* *	*	* *	*	* *
		* *	*	* *	*	* *		
*	* *	*	* *	*		*	*	* *
*	* * *	* *	* *	* *	*	* *	*	* * *
	*			*			*	* *
*	* * *	* *	* *	* *	*	*	*	*
	*			*	*	*		* *
		*				*		
*	* * *		*	*	*	*	*	*
	*			*				
*	* * *	* *	* *	* *	*	* *	*	*
*	* * *	*	* *	*	*	*	*	* * *
						*		
	* *	* *	* *	* *	*	*	*	
			*	* *	*	*	*	
		*		*		*		* * *
		*	*	* *	*	* *	*	
*	* * *	* *	*	* *	*	* *	*	*
								*
*	* * *	* *	* *	* *	*	* *	*	* * *
*	* * *	* *	* *	* *	*	* *	*	*
*	*	* *	* *	*		*	*	* *

11	9 11 14	11 14	10 9	10 15	16	21 14	17	9 16 10
----	---------	-------	------	-------	----	-------	----	---------



TABLE 12. C & D CANAL  
SPECIES INCIDENCE BY ZONE

ZONE III	SPECIES NAME	JAN 70/1/2/3	FEB 70/1/2/3	MAR 70/1/2/3	APR 70/1/2/3	MAY 70/1/2/3	JUN 70/1/2/3	JUL 70/1/2/3	AUG 70/1/2/3
	Alewife			*		*		*	**
	Bay anchovy					**	*	*	**
	Striped blenny		*						
	Bluefish						*		
	Brown bullhead		*		**	**	**	**	**
	Scaled carp			**	*		*	*	*
	White catfish	*	*	*	*	*	*	*	
	Catfish & bullhead-			*					
	Channel catfish, mixed		*		**	*	*	*	*
	White crappie			**					
	Atlantic croaker							*	*
	American eel	*		**	*	*	*	*	*
	Gizzard shad		*	*					*
	Goldfish								
	Blueback herring			**	*	*		*	*
	Hogchoker	*		**	*	*	*	*	*
	Johnny darter	*	*	*	*		*		*
	Atlantic menhaden						*	*	*
	Banded killifish						*		*
	Northern pipefish								*
	Weakfish							*	*
	Spottail shiner	*	*	**			*		
	Golden shiner								*
	Spot						*	*	*
	Striped bass	*		*	*	*	*	*	*
	Pumpkinseed			*	*	*	*		*
	White perch	*	*	**	*	*	*	*	*
	Yellow perch	*	*	**	*	*	*		*
	TOTALS	9	9	10 11 11	10 11	8 8 9	12 11	13 8	14 15





TABLE 13. C & D CANAL  
SPECIES INCIDENCE BY ZONE

ZONE IV	SPECIES NAME	JAN 70/1/2/3	FEB 70/1/2/3	MAR 70/1/2/3	APR 70/1/2/3	MAY 70/1/2/3	JUN 70/1/2/3	JUL 70/1/2/3
	Alewife			*	**		*	*
	Bay anchovy				*	***		*
	Brown bullhead			*		**	*	*
	Atlantic croaker							
	Scaled carp			*	*	*		
	White catfish			*			*	
	Channel catfish	*		**	**	**	**	*
	Larval clupeids					*		
	Atlantic croaker					*		
	American eel			*		**	*	*
	Gizzard shad		*					
	Naked goby							
	Blueback herring			*	**	***	*	*
	Hickory shad			*		*		
	Hogchoker				**	**	**	**
	Atlantic menhaden					*	**	**
	Northern pipefish							*
	Silver perch							
	Weakfish				*			*
	Spottail shiner	*		*		*		*
	Spot						*	*
	Striped bass			***	***	**	**	*
	White perch	*	*	***	***	***	**	**
	Yellow perch		*	*	*			
	TOTALS	3	3	7 5 7	8 7 4	9 10 8	6 10	11 3

[illegible]



Table 14.

SPECIES: Alewife 0 ages

By year, 1958 to 1972, by selected beach seine sites in Upper  
Chesapeake Bay.

Fish per haul

SEINING SITES

Year	Elkneck Park	Welch Point *	Mylands Pt. Lite **	Long Point	Ordinary Point	Howell Point	Worton Creek	Upper Bay Ave
1958	-	5.5	3 1	500.0	65.0	5.0	-	148.0
1959	-	0	10.5	2.0	1.0	0	-	2.7
1960	-	0	0	0.5	0	0	-	0.1
1961	0	1.0	0.5	5.0	0	0.5	0	1.0
1962	88.5	4.0	16.0	3.3	0	1.8	10.0	20.4
1963	5.0	4.8	13.5	15.0	0.3	5.3	0	6.3
1964	0.3	0	2.8	1.0	0.3	0	0.3	0.6
1965	4.5	0.3	1.3	3.8	11.0	0	1.3	2.7
1966	45.3	6.2	265.2	12.5	5.8	5.8	21.7	51.4
1967	7.3	2.8	1.3	2.5	1.7	17.7	0.2	4.8
1968	0.3	0	0.7	0.3	0	0.5	0.3	0.3
1969	35.3	1.8	1.5	7.7	0.7	6.0	16.5	10.1
1970	147.8	50.8	310.3	30.8	81.0	0.8	84.5	100.9
1971	37.3	2.3	1.1	10.0	1.5	40.2	3.7	13.7
1972	1.3	0.3	.5	0.3	-	0.2	-	0.5

\*1958-1970 Oldfield Pt.

\*\*1958-1970 Arnold Pt.

Table 15.

SPECIES: American shad 0 age

By year, 1958 to 1972, by selected beach seine sites in Upper  
Chesapeake Bay.

Fish per haul

## SEINING SITES

Year	Elkneck Park	Welch Point *	Hylands Pt. Lte **	Long Point	Ordinary Point	Howell Point	Worton Creek	Upper Bay Ave.
1958	-	24.0	3.0	0	0	19.0	-	9.2
1959	-	5.0	66.0	0	35.0	1.0	-	21.4
1960	-	6.0	29.5	18.5	8.0	19.5	-	16.3
1961	2.0	10.5	24.5	3.5	6.5	13.0	0	8.6
1962	14.5	4.5	8.0	1.8	3.8	1.0	0	4.8
1963	0.8	1.3	0.5	2.3	0.5	0	0	0.8
1964	0.3	0	1.8	0	0.5	0.3	0	0.4
1965	1.3	0	0.5	0	0	0	0	0.2
1966	43.3	1.5	14.2	3.7	2.0	1.8	0	9.5
1967	2.0	1.2	0.8	0.2	0	1.2	0	0.8
1968	6.3	2.3	5.5	1.7	0.7	2.0	0	2.6
1969	5.0	2.0	3.0	0.2	3.5	0	0	1.5
1970	0.2	2.0	1.2	0.2	2.3	0	0	0.8
1971	4.8	0	0	0.3	0.5	0.8	0	0.9
1972	0	0	0.2	0.8	0.7	0	0.2	0.3

\*1958-1970 Oldfield Pt.

\*\*1958-1970 Arnold Pt.



Table 16.

SPECIES: Menhaden All age

By year, 1958 to 1972, by selected beach seine sites in Upper  
Chesapeake Bay.

Fish per haul

## SEINING SITES

Year	Elkneck Park	Welch Point	Hylands Pt. ** Lite	Long Point	Ordinary Point	Howell Point	Worton Creek	Upper Bay Ave.
1958	-	0.5	0.5	12.5	0	0	-	2.7
1959	-	0.5	0	0	0	0	-	0.1
1960	-	6.0	0	8.5	0	0	-	2.9
1961	0	0	0	0	0	0	0	0
1962	0.5	4.8	0.5	51.5	0	0	0	8.2
1963	0.3	0.3	0	2.0	0	0	0.3	0.4
1964	0	0	0	1.25	0	0	0	0.2
1965	0.8	0.5	0	0	0	0	5.0	0.9
1966	0	0	0	0	0	0	0.5	0.1
1967	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0
1969	0	1.2	0.5	0	0	0.2	9.5	1.6
1970	0	0	0	0	0	0	0	0
1971	0	103.7	828.2	3.7	0	0.2	110.2	149.4
1972	1.8	3.7	1.2	1.2	-	1.3	-	1.8

\*1958-1970 Oldfield Pt.

\*\*1958-1970 Arnold Pt.

SPECIES: Needlefish All ages

By year, 1958 to 1972, by selected beach seine sites in Upper  
Chesapeake Bay.

Fish per haul

## SEINING SITES

Year	Elkneck Park	Welch Point	Hylands Pt. Lite **	Long Point	Ordinary Point	Howell Point	Worton Creek	Upper Bay Ave
1958	-	0	0	3.5	20.5	5.5	-	5.9
1959	-	0	0.5	16.5	6.0	0.5	-	4.7
1960	-	0	0	9.5	10.5	0.5	-	4.1
1961	2.0	2.0	0.5	0	33.5	2.0	2.5	6.1
1962	6.0	2.3	0.8	4.5	7.8	0.5	1.8	3.4
1963	0	2.0	2.3	0.8	22.3	1.0	11.5	5.7
1964	1.8	0.8	1.0	2.3	21.3	2.0	6.5	5.1
1965	5.5	0.3	0	3.5	1.3	1.0	19.8	4.4
1966	0.3	0	21.0	0.8	0.5	1.3	2.5	3.8
1967	0	0	5.3	0.5	1.5	0	0.3	1.1
1968	0	0	2.2	1.8	5.8	1.2	10.3	3.0
1969	0.3	0	0	0.3	2.5	0.5	1.0	0.7
1970	5.8	0.3	0	0	24.5	1.2	7.0	5.5
1971	3.7	0.7	2.0	1.0	3.5	4.5	5.3	3.0
1972	0.5	0.2	0.2	0.2	-	0	-	0.2

\*1958-1970 Oldfield Pt.

\*\*1958-1970 Arnold Pt.



Table 18.

SPECIES: Bay anchovy All ages

By year, 1958 to 1972, by selected beach seine sites in Upper  
Chesapeake Bay.

Fish per haul

SEINING SITES

Year	Elkneck Park	Welch Point*	Hylands Pt Lite**	Long Point	Ordinary Point	Howell Point	Worton Creek	Upper Bay Ave
1958	-	7.5	0	0.5	0	0	-	1.6
1959	-	6.0	24.0	0.5	175.0	21.5	-	45.4
1960	-	1.0	4.0	1.0	0	0.5	-	1.3
1961	0	4.0	0	0	0	1055	15.5	153.5
1962	1.0	13.0	3.0	5.0	0	51.3	0.3	10.5
1963	12.8	12.8	52.5	5.5	1.0	142.5	0	32.4
1964	3.5	8.3	10.5	12.5	3.8	24.3	0	9.0
1965	129.5	23.3	40.3	12.7	85.5	4.3	0	42.2
1966	111.7	75.5	343.5	104.5	195.7	38.3	78.3	135.4
1967	4.3	10.7	2.8	17.8	394.8	71.2	114.2	88.0
1968	214.0	0.2	12.5	0	91.3	1026.5	8.7	193.2
1969	2.7	3.0	5.2	2.3	0	154.8	45.7	30.5
1970	28.7	1.8	0.5	0.3	4.7	0.3	3.5	5.7
1971	9.8	5.2	2.0	0	1.3	0.2	16.6	5.0
1972	1.0	10.9	41.9	5.5	-	30.7	-	18.0

\*1958-1970 Oldfield Pt.

\*\*1958-1970 Arnold Pt.

Table 19.

SPECIES: Blueback herring 0 ages

By year, 1958 to 1972, by selected beach seine sites in Upper  
Chesapeake Bay.

Fish per haul

## SEINING SITES

Year	Elkneck Park	Welch Point *	Hylands Pt Lite **	Long Point	Ordinary Point	Howell Point	Worton Creek	Upper Bay Ave
1958	-	27.5	37.0	1000.0	150.0	150	-	242.9
1959	-	0.5	25.5	92.5	5.0	11.0	-	26.9
1960	-	8.0	4.0	142.5	145.6	0	-	50.0
1961	0	21.0	146.0	129.0	0.5	12.0	0	44.1
1962	21.0	55.7	56.3	252.0	8.2	0	0	56.2
1963	22.0	68.3	206.7	64.0	0	0	0	51.6
1964	15.0	14.2	63.5	95.0	2.8	0	0	27.2
1965	17.5	1.5	0.3	4.8	51.3	0	0	10.8
1966	4.8	86.5	552.8	17.5	13.0	18.3	24.7	102.5
1967	3.5	30.5	103.0	177.0	12.0	236.1	65.3	85.1
1968	4.0	65.5	36.3	1.3	4.2	100.2	342.5	79.1
1969	1544.5	45.0	55.5	34.8	858.7	2567.7	94.8	743.0
1970	4.5	840.0	863.3	65.8	32.5	0	100.0	272.4
1971	15.3	3.5	1.2	40.3	13.5	41.3	0.3	16.5
1972	1.7	0	1.7	2.2	-	0.3	-	1.2

\*1958-1970 Oldfield Pt.

\*\*1958-1970 Arnold Pt.



Table 20.

SPECIES: Mummichog All ages

By year, 1958 to 1972, by selected beach seine sites in Upper  
Chesapeake Bay.

Fish per haul

SEINING SITES

Year	Elkneck Park	Welch Point	Hylands Pt. Lite	Long Point	Ordinary Point	Howell Point	Worton Creek	Upper Bay Ave
1958	-	0	0	0	0	0	-	0
1959	-	0	0	0	0	0	-	0
1960	-	0	0	0	0	0	-	0
1961	0	0	0	0	0	0	0	0
1962	0	0	0	0.5	0	0	0	0.1
1963	0	0	0	0	0	0	0	0
1964	0	0	0	0.5	0	0	0	0.1
1965	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	4.5	0.6
1967	0	0	0	0.2	0	0	0.7	0.1
1968	0	0	0	0	0.2	0	2.0	0.3
1969	0	0	0	1.3	0	0	0.2	0.2
1970	0	0	0	2.7	0.8	0	0.5	0.6
1971	0	0	0	1.5	0.3	0	1.3	0.4
1972	0	0.2	0	0.9	-	0	-	0.2

\*1958-1970 Oldfield Pt.

\*\*1958-1970 Arnold Pt.

Table 21.

SPECIES: Pumpkinseed All ages

By year, 1958 to 1972, by selected beach seine sites in Upper  
Chesapeake Bay.

Fish per haul

## SEINING SITES

Year	Elkneck Park	Welch Point *	Hylands Pt. Lite **	Long Point	Ordinary Point	Howell Point	Worton Creek	Upper Bay Ave
1958	-	0.5	1.0	1.5	9.0	0	-	2.4
1959	-	0	0	0	0	0	-	0
1960	-	0	0.5	0	0	0	-	0.1
1961	0	0	0	1.5	0.5	0	2.0	0.6
1962	1.5	0.5	0	0	0.5	0	1.8	0.6
1963	1.3	0.5	1.0	1.3	1.8	0.3	1.0	1.0
1964	0.8	0	0.5	0.8	3.3	0	11.8	2.4
1965	1.0	0	0	0	3.3	0	10.5	2.1
1966	0.2	0.2	0	1.2	9.0	0.2	6.3	2.4
1967	0	0	0.3	0.3	6.7	0	1.3	1.2
1968	0	0.7	0	3.5	1.5	0	26.3	4.3
1969	0.8	0.2	0.2	2.3	2.3	8.7	15.5	4.4
1970	0.2	0	0	0.3	0.2	0	4.0	0.7
1971	0	0	0.8	0.2	0.5	0.3	4.3	0.8
1972	1.9	0.3	0.7	1.5	-	0.3	-	1.0

\*1958-1970 Oldfield Pt.

\*\*1958-1970 Arnold Pt.



Table 22.

SPECIES: Spot 0 age

By year, 1958 to 1972, by selected beach seine sites in Upper  
Chesapeake Bay.

Fish per haul

## SEINING SITES

Year	Elkneck Park	Welch Point	Hylands Pt. Lite	Long Point	Ordinary Point	Howell Point	Worton Creek	Upper Bay Ave
1958	-	0	0	0	0	0	-	0
1959	-	0	0	0.5	0	0	-	0.1
1960	-	0	0	0	0	0	-	0
1961	1.0	0	0	73.0	66	1.0	4.0	20.7
1962	0	0	0	0	0	0	0	0
1963	0	0	0	0.3	0	0	0	0.04
1964	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0.5	0.04
1966	1.3	0.2	0	0.2	0.2	0	1.0	0.4
1967	0	0	0	0	0	0	0	0
1968	0	0	0	0	0.2	0	2.3	0.4
1969	0	0	0	0.8	1.3	4.0	2.1	1.2
1970	0	0	0	0	0	0	0	0
1971	0	0.8	0	0.3	0.2	0.3	1.7	0.5
1972	0	0.5	0	0.5	-	0	-	0.2

\*1958-1970 Oldfield Pt.

\*\*1958-1970 Arnold Pt.

Table 23.

SPECIES: Spottail shiner All ages

By year, 1958 to 1972, by selected beach seine sites in Upper  
Chesapeake Bay.

Fish per haul

SEINING SITES

Year	Elkneck Park	Welch Point	Hylands Pt. <del>lite</del>	Long Point	Ordinary Point	Howell Point	Worton Creek	Upper Bay Ave
1958	-	15.0	5.0	15.0	124.0	3.0	-	32.4
1959	-	5.5	38.5	2.0	13.0	0	-	11.8
1960	-	0.5	0	0.5	7.0	0	-	1.6
1961	12.5	8.5	0	7.5	14.0	0	1.0	6.2
1962	27.3	3.3	1.5	1.3	43.3	0	2.3	11.2
1963	10.8	8.3	7.5	8.8	30.7	0	0.3	9.5
1964	32.8	6.0	12.8	5.3	78.8	0	3.3	19.1
1965	4.5	8.3	0.3	0	3.5	0	1.3	2.5
1966	13.0	9.5	2.3	37.3	46.7	0	4.2	16.1
1967	12.8	5.7	14.5	4.0	36.3	0.2	3.3	11.0
1968	4.3	2.8	0.2	3.8	16.8	0	5.3	4.4
1969	5.8	4.5	1.0	13.5	13.2	0.3	12.7	7.3
1970	3.3	2.5	0.7	3.5	8.3	1.0	11.8	4.3
1971	1.2	2.0	1.5	2.3	9.3	0.3	24.2	5.8
1972	3.0	2.5	1.9	1.0	-	1.0	-	1.9

\*1958-1970 Oldfield Pt.

\*\*1958-1970 Arnold Pt.



Table 24.

SPECIES: Striped bass 0 age

By year, 1958 to 1972, by selected beach seine sites in Upper  
Chesapeake Bay.

Fish per haul

## SEINING SITES

Year	Elkneck Park	Welch Point	Hylands Pt. ** Lite	Long Point	Ordinary Point	Howell Point	Worton Creek	Upper Bay Ave
1958	-	20.5	22.0	12	70.5	16	-	28.2
1959	-	2.0	0	1.0	6.5	0	-	1.9
1960	-	0.5	0	2.0	22.0	23.0	-	9.5
1961	1.0	17.5	1.5	73.0	66	1.0	4.0	23.4
1962	7.5	42.2	12.2	0	17.0	5.2	1.8	11.3
1963	0	2.5	3.5	11.0	14.5	4.5	6.8	6.1
1964	10.3	22.5	35.3	60.7	78.5	3.7	6.2	31.0
1965	0	1.2	0.2	9.5	3.8	0	0.2	2.1
1966	6.7	32.3	107.7	30.7	33.8	6.0	9.8	32.4
1967	0.7	4.5	24.3	5.7	61.3	24.8	0.3	17.4
1968	1.2	6.8	3.0	10.7	46.2	14.3	9.5	13.1
1969	7.7	9.8	13.1	29.5	50.1	60.0	9.3	25.7
1970	6.8	2.2	20.2	14.2	120.8	55.3	12.2	33.1
1971	1.0	3.2	31.2	29.8	70.0	15.7	15.2	23.7
1972	0.2	1.5	2.7	.7	-	1.0	-	1.1

\*1958-1970 Oldfield Pt.

\*\*1958-1970 Arnold Pt.

Table 25.

SPECIES: Atlantic silverside All ages

By year, 1958 to 1972, by selected beach seine sites in Upper Chesapeake Bay.

Fish per haul

## SEINING SITES

Year	Elkneck Park	Welch Point	Hylands Pt. Lite	Long Point	Ordinary Point	Howell Point	Worton Creek	Upper Bay Ave
1958	-	0	0	0	12.5	14.0	-	5.3
1959	-	0	12.5	1.5	5.5	0.5	-	4.0
1960	-	7.5	0	0	0	82.0	-	17.9
1961	0	3.0	1.0	0	0	175.0	29.5	29.8
1962	0.5	23.8	1.3	1.0	4.3	90.8	525.0	92.4
1963	0	21.3	62.5	1.5	20.3	33.3	133.5	38.9
1964	0	29.5	16.2	0.5	25.0	26.3	243.8	48.8
1965	1.8	52.5	6.8	59.5	116.0	34.3	107.7	54.1
1966	219.7	77.8	443.7	94.8	158.5	241.3	34.3	171.4
1967	0.2	1.2	6.2	25.7	0.3	53.2	41.2	18.3
1968	0	13	0	9.3	0.3	30.5	48.0	14.4
1969	0	27.5	69.7	12.5	67.3	90.2	35.8	43.3
1970	0	3.7	64.7	34.5	37.8	8.8	27.3	25.3
1971	0	9.7	16.0	78.7	30.0	54.2	97.2	40.8
1972	2.9	6.7	5.3	18.2	-	1.9	-	3.9

\*1958-1970 Oldfield Pt.

\*\*1958-1970 Arnold Pt.



Table 26.

SPECIES: White perch All ages

By year, 1958 to 1972, by selected beach seine sites in Upper  
Chesapeake Bay.

Fish per haul

SEINING SITES

Year	Elkneck Park	Welch Point *	Hylands Pt Lite **	Long Point	Ordinary Point	Howell Point	Worton Creek	Upper Bay Ave
1958	-	5.0	0.5	12.0	70.5	16.0	-	20.8
1959	-	4.0	6.0	41.0	0.5	1.0	-	10.5
1960	-	0	0.5	12.5	4.5	0	-	3.5
1961	20.5	5.0	4.5	31.5	0	2.0	10.5	10.6
1962	36.3	8.5	7.0	8.3	2.8	38.3	25.5	18.1
1963	23.5	95.5	9.0	57.5	6.8	1.8	5.5	28.5
1964	110.8	10.0	5.3	55.0	5.0	0.3	13.8	28.5
1965	20.5	23.5	0.5	52.5	2.0	0	0	14.1
1966	63.8	14.1	235.2	31.5	16.3	0.0	23.3	53.6
1967	12.3	3.5	0	2.7	5.0	0.7	7.8	4.6
1968	36.2	9.8	5.7	11.5	5.0	2.7	120.8	27.4
1969	93.3	17.0	10.6	320.0	41.3	54.4	95.0	90.3
1970	60.0	9.5	44.8	92.5	9.2	6.3	321.7	77.7
1971	5.5	11.3	16.5	158.8	33.4	0.7	74.5	43.0
1972	6.5	35.8	18.8	19.0	8.8	0.5	8.2	10.7

\*1958-1970 Oldfield Pt.

\*\*1958-1970 Arnold Pt.

TABLE 27A • C &amp; D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 06/71									
	100	101	102	103	104	104H	105AB	105	105H	106AB
ALEWIVES	.00T	.00	.00	.00	.00T	.00	.00	.00	.00	.00
AMERICAN EEL	2.00	.00	10.00	7.78	.00	.00	.00	.00T	.00	4.00
BLUE CRABS	1.50	.00	.00	.00	.00	.00	.00	.00T	.00	.00T
BLUE HERRING	.00T	.00	.00	.00	.00	.00	.00	.00	.00	.00
BLUEFISH	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00T
BULLHEADS	.00	.00	9.50	.00	.00	16.67	35.38	.00	4.00	5.00
CATFISH WHITE	.00	.00	.50	.00	1.00	.00	8.72	.00	.00	.00
CHNL CATFISH	1.00	.00	4.50	11.11	.50	.00	38.60	.00	.00	.00
DARTER JOHNNY	.00	.00	.00	.00	.00	.00	.00T	.00	.00	.00
HOGCHOKER	.00	.00	1.00	.00	.00T	3.70	5.20	.00T	.00	.00
MENHADEN	.00	.00	.00	.00	.00T	1.85	.00	.00	.00T	.00T
SCALED CARP	.00	14.00	64.00	.00	.00	.00	16.00	.00	.00	.00
SHINER SPOTTAIL	.00	.00	.00T	.00T	.00	.00	.00T	.00	.00	.00
SPOT	1.00T	.00	.00	.00	.00	.00	.00T	.00	.00	.00
STRIPED BASS	.00	.00	1.00	2.22	.00	.00T	.00T	.00	.00	1.00
PUMPKINSEED	.00	.00	.00	.00T	.00	.00	.00	.00	.00	.00
WHITE PERCH	7.00	.00	18.50	44.44	3.00	100.00	108.19	1.00	9.00T	5.00T
YELLOW PERCH	.00	.00	.00	.00	.00	7.41	.00	.00	.00	.00T
TOTALS	12.50	14.00	109.00	65.56	4.50	129.63	212.09	1.00	13.00	15.00

.00 in a column indicates not taken in this table



2

SURVEY

LE TRAWLED 06/71

104H	105AB	105	105H	106AB	106	106H	107	108	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00T	.00	4.00	.00T	6.00	.00	.00	29.78
.00	.00	.00T	.00	.00T	.00	6.00	.00	.00T	7.50
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00T	.00	.00	.00	.00	.00
16.67	35.38	.00	4.00	5.00	.50	12.00	.00	.00	83.05
.00	8.72	.00	.00	.00	.00	.00	1.00	.00	11.22
.00	38.60	.00	.00	.00	1.00	4.00	1.00T	.00	61.71
.00	.00T	.00	.00	.00	.00	.00	.00	.00	.00
3.70	5.20	.00T	.00	.00	.00	30.00	.00T	.00T	39.91
1.85	.00	.00	.00T	.00T	.00T	.00T	.00T	1.00	2.85
.00	16.00	.00	.00	.00	.00	260.00	.00	.00	354.00
.00	.00T	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00T	.00	.00	.00	.00	.00	.00	.00	1.00
.00T	.00T	.00	.00	1.00	.00T	6.00	.00T	.00	10.22
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	108.19	1.00	9.00T	5.00T	1.50T	24.00	.50T	1.00T	323.13
7.41	.00	.00	.00	.00T	.00	2.00	.00	.00	9.41
129.63	212.09	1.00	13.00	15.00	3.00	350.00	2.50	2.00	933.78

ble

TABLE 27B. C & D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 07/71									
	100	101	102	103	104	104H	105AB	105	105H	106AB
ALEWIVES	.00	.12	.00T	.50	.06	.00	.00	.06T	1.15	2.77
AMERICAN EEL	.00	.25	2.02	.00	1.00	4.00	9.00	.50	3.03	9.56
ANCHOVIES	.00	.00	.00	.00	.00	.00	.00	.00T	.00	.00T
BLUE CRABS	.38	.25	1.71	.00	1.50	6.00	1.00	1.19	6.06	2.00
BLUE HERRING	.00T	.00T	.00	.00	.00T	2.00	.00	.00T	.00	.00T
BLUEFISH	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
BULLHEADS	.00	.50	3.03T	.19	.00	2.00	64.00	.00	1.52	94.27
CATFISH, WHITE	.00	.00	.00	.00	.00	.00	4.20	.00	.00	.76
CHNL CATFISH	.06	1.00	6.06T	3.50	.00	.00	9.00	.06T	.00	.00
DARTER, JOHNNY	.00	.00	.00	.00	.00	.00T	.00	.00	.00T	.00
GRAY TROUT	.00	.00T	.00	.00	.00T	2.00	.00T	.38	.00T	1.70
HOGCHOKER	.00	.00T	4.74	1.00	.00T	2.00	18.00	.12	.00T	.00T
MENHADEN	.18	2.25	1.26	.50	.38	.00	.00	.00T	1.52	.00
PIPEFISH	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
RANGIA CLAMS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00T
SCALED CARP	.00	7.00	45.00	70.00	.00	.00	34.00	.00	16.00	18.00
SHINER, SPOTTAIL	.00	.00	.00	.19T	.00	.00	.00	.00	.00	.00
SPOT	.00	.00T	.64	.00	.00	3.50	.00	.00	6.06	.66
STRIPED BASS	.00	.56	7.56	2.50	.18	.24	.00	.06	18.18	.72
WHITE PERCH	1.00	10.75	48.39	7.00	1.37	17.00	72.80	14.75	81.82	130.44
YELLOW PERCH	.00	.00	.00	.00	.19	.62	.00	.00	1.15	.00
TOTALS	1.62	22.68	120.39	85.38	4.68	39.36	212.00	17.12	136.48	294.29



2

VEY

TRAWLED 07/71

04H	105AB	105	105H	106AB	106	106H	107	108	
.00	.00	.06T	1.15	2.77	.06	.00	.25	.00	4.97
0.00	9.00	.50	3.03	9.56	5.00	.00	.00	.00	34.36
.00	.00	.00T	.00	.00T	.00	.00	.12T	.41T	.53
5.00	1.00	1.19	6.06	2.00	4.00	4.00	1.88	.00	29.97
2.00	.00	.00T	.00	.00T	.25	.00	.00	.00	2.25
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2.00	64.00	.00	1.52	94.27	3.00	.00	.00	.00	168.51
.00	4.20	.00	.00	.76	.00	.00	.00	.00	4.96
.00	9.00	.06T	.00	.00	4.50	.12	.12	.00	24.42
.00T	.00	.00	.00T	.00	.00	.00	.00	.00	.00
2.00	.00T	.38	.00T	1.70	.94	.00	3.63	1.56	10.21
2.00	18.00	.12	.00T	.00T	3.18	.88	.00	.00	29.92
.00	.00	.00T	1.52	.00	.06	.00	.00T	.25	6.39
.00	.00	.00	.00	.00	.00	.00	.00T	.00	.00
.00	.00	.00	.00	.00T	.00	.00	.00	.00	.00
.00	34.00	.00	16.00	18.00	.00	24.00	.00	.00	214.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.19
3.50	.00	.00	6.06	.66	.00	.00	.00	.35T	11.21
.24	.00	.06	18.18	.72	.06T	.00	.50	.56	31.12
17.00	72.80	14.75	81.82	130.44	11.18	1.50	4.56	2.25	438.22
.62	.00	.00	1.15	.00	.00	.00	.00	.00	1.96

39.36 212.00 17.12 136.48 294.29 32.23 30.50 11.06 5.38 1013.18

TABLE 27C. C &amp; D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 08/71									
	100	101	102	103	104	104H	105AB	105	105H	106AB
ALEWIVES	.50	.12T	.54	5.21	1.45T	1.45	.00T	.06T	.00T	16.22
AMERICAN EEL	.00	.00	.00	.00	.00	.00	5.00	.36T	.00	3.23
ANCHOVIES	.48	.66	.12	.06T	1.27	.73	.00T	.00T	.00T	.77
BLUE CRABS	.50	1.00	.00	.00	1.52	.00	3.00	.00	2.00	23.81
BLUE HERRING	.00	.00T	.58	.06	.00T	.00	.00	.00	.00	.00
BULLHEADS	.00	.00	2.77	4.24	.00	.00	15.92	1.50	6.84	15.58
CHNL CATFISH	.00	.00	5.13	.00T	.00	.00	7.96	.12	9.44	1.19
DARTER, JOHNNY	.00	.00	.00	.00	.00T	.00T	.00	.00	.00T	.00
GIZZARD SHAD	.00	.25	2.92	4.00	1.82	.00T	17.56	.06	.96	7.19
GRAY TROUT	.00	.00	.00	.00	.00T	.00T	.00T	.42	.00	4.73
HOGCHOKER	.00T	.43	9.62T	.00T	.73T	.00T	27.07	.12T	1.92	3.21
MENHADEN	.25	1.02	.00	.00	.00	18.18	11.90	.62	.00T	.00
SCALED CARP	.00	.00	16.00	19.00	.00	.00	.00	.00	16.00	.00
SEA HERRING	.25	.00	.00	.00	.73	.00	.00	.00	.00	.00
SHINER, SPOTTAI	.00	.00	.00	.00T	.00	.00	.00	.00	.00	.00
SPOT	1.18	1.50	5.46	.00T	4.85	7.88	25.82	.00T	24.00	23.54
STRIPED BASS	.12	.00	2.77T	.24	.00T	.00T	.91	.00	.00	.97
PUMPKINSEED	.00	.00	.00	.48	.00	.00	.00	.00	.00	.00
WHITE PERCH	.84	.50	83.92	38.30	52.27	12.12	92.39	12.75	30.00	130.41
YELLOW PERCH	.00	.00	.00	.00	.00	.00	.00	.00	.00	.29

TOTALS 4.12 5.48 129.83 71.59 64.64 40.36 207.53 16.01 91.16 231.1



2

KEY

TRAWLED 08/71

WH	105AB	105	105H	106AB	106	106H	107	108	
.45	.00T	.06T	.00T	16.22	.00T	1.00	.18T	1.75	28.49
.00	5.00	.36T	.00	3.23	.00T	.00T	.00	.00	8.59
.73	.00T	.00T	.00T	.77T	.06	1.68	.24T	1.36T	7.43
.00	3.00	.00	2.00	23.81	.00	4.00	.00	1.50	37.32
.00	.00	.00	.00	.00	.00	.00	.00	.00	.64
.00	15.92	1.50	6.84	15.58	.00	.00	.00	.00	46.85
.00	7.96	.12	9.44	1.19	.00	.00T	.00	.00	23.84
.00T	.00	.00	.00T	.00T	.00	.00	.00	.00	.00
.00T	17.56	.06	.96	7.19	.00	.00	.00	.00	34.76
.00T	.00T	.42	.00	4.73	.00T	1.00	.63	.00T	6.78
.00T	27.07	.12T	1.92	3.21	.00T	.50	.00	.00	43.59
.18	11.90	.62	.00T	.00	.66T	1.68	.12	.00	34.43
.00	.00	.00	16.00	.00	.00	.00	.00	.00	51.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.98
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7.88	25.82	.00T	24.00	23.54	1.72	6.00	1.25	.84	104.03
.00T	.91	.00	.00	.97T	.00	.00T	.12T	.00	5.13
.00	.00	.00	.00	.00	.00	.00	.00	.00	.48
2.12	92.39	12.75	30.00	130.41	1.72	4.50	3.03	.36	463.12
.00	.00	.00	.00	.29	.00	.00	.00	.00	.29
40.36	207.53	16.01	91.16	231.14	4.16	20.36	5.57	5.81	897.75

TABLE 27D. C &amp; D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 09/71									
	100	101	102	103	104	104H	105AB	105	105H	106
ALEWIVES	.50	1.25	1.76	2.00	.25T	1.52	.00T	.06	.24	
AMERICAN EEL	.00	3.12	6.06	.00	.00	.00T	2.00T	.00	1.00	
ANCHOVIES	.75	.49	1.36	1.00	.18T	.00T	.96	.72	.50	
ATL SHRIMP	.00	.00	.00	.00	.00	.00	.00	.00	.00T	
BLACK DRUM	.00	.00	.00	.00	.00	.00	.00	.06	.00	
BLUE CRABS	.00	.12T	.00	.00	.00	.00	4.00	.50T	5.00	
BLUE HERRING	.00T	.00	.00T	1.00	.00T	.00	.00T	.00	.00	
BULLHEADS	.00	2.25	.00	.00	.00	.00T	9.48	.00	1.00	10
CATFISH, WHITE	.00	.00	1.50	.00	.00	.00	.00	.00	.00	
CHNL CATFISH	.00	1.25	1.76	.00	.00	18.18	2.00	.00	4.00	
DARTER, JOHNNY	.00	.00	.00	.00T	.00	.00T	.00	.00	.12	
GINSBG GOBY	.00	.00	.00	.00	.00	.00	.00	.00	.00	
GIZZARD SHAD	.18	.00	1.52	1.48	.25	.00	15.00	.00	.12	
GRAY TROUT	.37	.00	.00T	.00	.50	1.52	.00	.50	.84	
HOGCHOKER	.62	5.00	3.79	.48T	.00	.00T	5.00	.00	2.00	
MENHADEN	.00	.00	.50	.00	.00T	.00	.00	.31	.24	
RANGIA CLAMS	.00	.00	.00	.00	.00	.00T	.00	.00	2.00	
SAND PERCH	.00	.00	.00	.00	.00	.00	.00	.00T	.00	
SCALED CARP	.00	.00	.00	.00	.00	18.00	.00	.00	.00	
SPOT	1.00	13.00	5.48	1.48	.00T	15.15	5.00	.00	12.50	1
STRIPED BASS	1.12	.60	2.27	.00	.00	.00	.00T	.00	.00	
WHITE PERCH	24.00	9.00	29.42	55.00	2.00	24.24	34.00	.37	16.00	1
TOTALS	28.54	36.08	55.42	62.44	3.18	78.61	77.44	2.52	45.56	1



2

SURVEY

1 MILE TRAWLED 09/71

	104H	105AB	105	105H	106AB	106	106H	107	108	
BT	1.52	.00T	.06	.24	2.72	.12T	.00T	.00T	.25T	10.66
D	.00T	2.00T	.00	1.00	6.00	.50	.00	.00	4.00	22.68
BT	.00T	.96	.72	.50	.72T	.18	.00	.00T	1.25T	8.11
D	.00	.00	.00	.00T	.00	.00T	.00	.00T	.00	.00
D	.00	.00	.06	.00	.00	.00	.00	.00	.00	.06
D	.00	4.00	.50T	5.00	2.50	.25T	1.00	.00T	.00	13.37
BT	.00	.00T	.00	.00	.00	.00	.00	.00T	.00T	1.00
D	.00T	9.48	.00	1.00	107.00	.00	30.00	.00	2.94	152.67
D	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.50
D	18.18	2.00	.00	4.00	2.00	2.50T	40.00	.72	2.00	74.41
D	.00T	.00	.00	.12	.00	.00	.00	.00	.00	.12
D	.00	.00	.00	.00	.00	.00	.00	.00T	.00	.00
D	.00	15.00	.00	.12	.00T	.00	.00T	.00	.00	18.55
D	1.52	.00	.50	.84	2.00	1.20	2.40	1.37T	.60	11.30
D	.00T	5.00	.00	2.00	.48T	1.12	20.00	.72	.48	39.69
BT	.00	.00	.31	.24	.00	.18T	.00	.00	1.50	2.73
D	.00T	.00	.00	2.00	.00	.00	.00	.00	.00	2.00
D	.00	.00	.00T	.00	.00	.00	.00	.00T	.00	.00
D	18.00	.00	.00	.00	.00	.00	48.00	.00	.00	66.00
BT	15.15	5.00	.00	12.50	12.00	.84	45.00	.72	2.12	114.29
D	.00	.00T	.00	.00	.00	.00	10.00	.00T	.00T	13.99
D	24.24	34.00	.37	16.00	19.00	6.50	55.00	3.75	38.75	317.04

18 78.61 77.44 2.52 45.56 154.42 13.39 251.40 7.28 53.89 870.17

TABLE 27B. C &amp; D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 10/71									
	100	101	102	103	104	104H	105AB	105	105H	106A
ALEWIVES	.18	.24T	2.50	2.12T	1.02	.00T	.00	1.14	.24	6.5
AMERICAN EEL	.00	.00	.00	.00	.00	.00	5.00T	.00	.00	6.0
ANCHOVIES	.31	24.42	.62	1.00T	1.25	24.00	.00T	2.00	8.50	5.4
ATL SHRIMP	.00	.00	.00T	.00	.00	.00T	.00	.00	.00T	.0
BLACK DRUM	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
BLUE CRABS	.00	.00	.00	.24	.00	.00T	15.00	.00	.50	.0
BLUE HERRING	.25T	10.18	.12	2.40T	.00	.48	.00	.00T	.24	3.3
BULLHEADS	.00	.00	.00	.00	.00	6.00	42.75	1.00	7.00	30.0
CATFISH, WHITE	.00	.00	.00	.00	.00	.00	.00	.00	3.00	.0
CHNL CATFISH	.60	.00	1.50	2.00	.00	.00	30.75	.25	1.00	4.0
DARTER, JOHNNY	.00	.00	.00	.00	.00	.48	.00	.00	.00T	.0
GIZZARD SHAD	.00	.00	.50	.12	.25	.00T	48.00	.06	2.50	10.0
GRAY TROUT	.00	.72	.24	.00	.12	.00T	.00	.12T	2.00	1.0
HOGCHOKER	.00	.00T	.00	.00T	.00	.00	2.50	.00	.00T	.7
MENHADEN	.00	2.22	.75	.00T	.78	2.00	2.50	.50	2.00	.1
RANGIA CLAMS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
SAND PERCH	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
SCALED CARP	.00	.00	.00	42.00	.00	60.00	49.50	.00	.00	.0
SILVERSIDES	.00	.00	.00	.00	.00	.00	.00	.00	.00T	.0
SPOT	.00	3.12	1.50	4.00	.00	.00T	8.22	.00	2.00	7.0
STRIPED BASS	.00	2.30	.00	1.00	.00	.96	.00T	.00	.24	.0
PUMPKINSEED	.00	.00	.00	.00T	.00	.00	.00	.00	.00	.0
WHITE PERCH	.12	16.06	15.66	20.75	.36	108.00	233.49	1.72	14.00	21.2
YELLOW PERCH	.00	.00	.00	.48	.00	.00	.00	.00	.24	.0
CROAKER, AT	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0

TOTALS	1.46	59.26	23.39	76.11	3.78	201.92	457.71	6.79	43.46	95.
--------	------	-------	-------	-------	------	--------	--------	------	-------	-----



2

AWLED 10/71

	105AB	105	105H	106AB	106	106H	107	108	
DT	.00	1.14	.24	6.50	1.50	.60	1.84	2.75	20.63
0	5.00T	.00	.00	6.00	1.75	3.50	.50	.06	16.81
0	.00T	2.00	8.50	5.43	2.62	.00T	3.84	4.25	78.24
0T	.00	.00	.00T	.00	.00T	.00	.00	.00	.00
0	.00	.00	.00	.00	.00	.50	.00	.00	.50
0T	15.00	.00	.50	.00	1.50	1.00	.00	.00	18.24
8	.00	.00T	.24	3.30	.00T	.00	.00	.00	16.97
00	42.75	1.00	7.00	30.00	.00	3.00	.00	.00	89.75
00	.00	.00	3.00	.00	.00	.00	.00	.00	3.00
00	30.75	.25	1.00	4.00	1.00	3.50	.00	.00	44.60
8	.00	.00	.00T	.00	.00	.00T	.00	.00	.48
00T	48.00	.06	2.50	10.00	.25	.00	.25	.36	62.29
00T	.00	.12T	2.00	1.00	1.00	.60	.25T	.00	6.05
00	2.50	.00	.00T	.75	3.50	16.00	.00	.00	22.75
00	2.50	.50	2.00	.18	.42	.00T	.00T	.00	11.35
00	.00	.00	.00	.00	.00	4.00	.00	.00	4.00
00	.00	.00	.00	.00	.18	.00	.00	.00	.18
00	49.50	.00	.00	.00	.00	44.00	.00	.00	195.50
00	.00	.00	.00T	.00	.00	.00	.00	.00	.00
00T	8.22	.00	2.00	7.00	.25	7.50	.00	.00	33.59
.96	.00T	.00	.24	.00T	.00	.00T	.00	.00	4.50
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	233.49	1.72	14.00	21.25	20.34	51.47	12.50	.30	536.02
.00	.00	.00	.24	.00	.00	.00	.00	.00	.72
.00	.00	.00	.00	.00	.00	.00	.00T	.00	.00

1.92 457.71 6.79 43.46 95.41 34.31 135.67 19.18 7.72 1166.17

TABLE 27F. C &amp; D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 12/71								
	100	101	102	103	104	104H	105AB	105	105H
ALEWIVES	.00	.00	.00	.00	.00	.00	.00	.00T	.00
AMERICAN EEL	.00T	.00	.00T	.00	.00T	.00	.00	.00	.00
ANCHOVIES	.00	.00	.00	.00	.00	.00T	.00	.00T	.00
ATL SHRIMP	.00	.00	.00	.00	.00T	.00	.00	.00	.00
BLUE HERRING	.00	.00T	.00	.00	.00	.00T	.00	.00T	.00T
BULLHEADS	.00T	.00	3.37	.00	.00	.36	5.00	.00	1.00
CATFISH WHITE	.00	.00	.00	.00	.00T	.00	15.86	.00	.00
CHNL CATFISH	3.75	.75	1.25	.75	.25	.24	76.50	.31	10.72
CROAKER, AT	.00T	.00T	.00T	.00	.00T	.00T	.00	.00	.00T
DARTER, JOHNNY	.00	.00	.06T	.00T	.00T	.00T	.00T	.00	.12
GIZZARD SHAD	16.25	.18	.00	.00	.81	.00	.00	.00	.00
HOGCHOKER	.00T	.75T	.36T	.00	.00	.12	.00T	.00T	.72
MENHADEN	.00T	.00	.00	.00	.00	.00	.00	.00	.00
RANGIA CLAMS	.00	.00	.00	.00	.00	.00	.00	.00	.00
SCALED CARP	.00	.00	.00	2.25	.00	.00	15.00	.00	.00
SHINER, SPOTTL	.00	.00	.06T	.30T	.00T	.00	3.62	.00	.24
STRIPED BASS	.00	.00	.00	.00	.06T	.00	.00	.00	.00T
PUMPKINSEED	.00	.00T	.18	.00	.00	.00	.00T	.00	.00
WHITE PERCH	49.75	12.25	19.75	.00T	10.00	21.40	2.00	3.00	.00
YELLOW PERCH	.00	.00	6.00	.00T	.12	.12	.75	.00	.00
GOLDFISH	.00	.00	.00	2.25T	.00	.00	.00	.00	.00
FOURSPINE STIKLE	.00	.00	.00	.00	.00T	.00	.00	.00	.00
TOTALS	69.75	13.93	31.03	5.55	11.24	22.24	118.73	3.31	12.80



2

SURVEY

LE TRAWLED 12/71

104H	105AB	105	105H	106AB	106	106H	107	108	
.00	.00	.00T	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00T	.00	.00	.00	.00	.00
.00T	.00	.00T	.00	.00	.00T	.00T	.00	.00T	.00
.00	.00	.00	.00	.00T	.00T	.00	.00T	.00T	.00
.00T	.00	.00T	.00T	.00	.00	.00	.00T	.00T	.00
.36	5.00	.00	1.00	10.50	.00	.00	.00	.00	20.23
.00	15.86	.00	.00	.50	.00	1.68	.00	.00	18.04
.24	76.50	.31	10.72	2.00	1.25	4.40	.00	.00	102.17
.00T	.00	.00	.00T	.00	.00T	.00T	.00	.00T	.00
.00T	.00T	.00	.12	.00T	.00	.00	.00	.00	.18
.00	.00	.00	.00	2.25	.00	.00	.00	.00	19.49
.12	.00T	.00T	.72	.00T	.36	.00	.00	.00	2.31
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00T	.00	.00	.00	.00	.00
.00	15.00	.00	.00	9.00	.00	.00	.00	.00	26.25
.00	3.62	.00	.24	2.25	.00	.00	.00T	.00T	6.47
.00	.00	.00	.00T	.00T	.00	1.00	.00	.00T	1.06
.00	.00T	.00	.00	.00	.00	.00	.00	.00	.18
21.40	2.00	3.00	.00	25.45	2.75	66.00	2.50	2.50	217.35
.12	.75	.00	.00	1.00	.00	.60	.00	.00	8.59
.00	.00	.00	.00	.50	.00	.00	.00	.00	2.75
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22.24	118.73	3.31	12.80	53.45	4.36	73.68	2.50	2.50	425.07

TABLE 27G . C & D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 03/72								
	100	101	102	103	104	104H	105AB	105	105H
ALEWIVES	.00	.75	.00	.00	.00	.00	.00T	.00	.00
AMERICAN EEL	.00T	.00T	.00	.00	.00	.50	.00T	.00	.00
BLUE HERRING	.00	.00	.00	.00	.00	.00	4.00	.00	.00
BULLHEADS	.00	.06	6.50	3.75	.00	3.00	2.00	.00	.00
CATFISH, WHITE	.00	.00	.00	.50	.00	.00	.00	.00	.00
CHNL CATFISH	.00	.00	.00T	3.25	3.00	3.00	.00	.50	.00T
DARTER, JOHNNY	.00	.06	.12T	.75	.06	1.00	.00	.00	.00
HOGCHOKER	.06	.00T	.00T	.00	.00	.00	.00T	.50	.00T
RANGIA CLAMS	.00	.00T	.00T	.00	.00	.00	.00	.00	.00
SHINEK, SPOTTL	.00	.00	.00	.25T	.06	.00	1.00	.00	.00T
STRIPED BASS	6.00	1.00	.00	.00	.00	.00	.00	.00	.00
PUMPKINSEED	.00	.00	.00	.00	.00	.00	.00T	.00	.00
WHITE PERCH	.06	33.50	6.50	19.00	2.50	43.00	55.00	12.50	38.00
YELLOW PERCH	.06	.00	.00	4.25	.06	3.00	1.50T	.00	4.00
TOTALS	6.18	35.37	13.12	31.75	5.68	53.50	63.50	13.50	42.00



2

URVEY

TRAWLED 03/72

04H	105AB	105	105H	106AB	106	106H	107	108	
.00	.00T	.00	.00	.00	.00T	.00	.00	.00T	.75
.50	.00T	.00	.00	5.00T	.00T	.00	.00	.00	5.50
.00	4.00	.00	.00	.00	.00	.00	.00	.00T	4.00
3.00	2.00	.00	.00	4.83	.00	.00	.00	.00	20.14
.00	.00	.00	.00	.00	.00	.00	.00	.00	.50
3.00	.00	.50	.00T	12.00	.00	.00T	.06	.00	21.81
1.00	.00	.00	.00	.00	.00	.00	.00	.00	1.99
.00	.00T	.50	.00T	.00	.00T	.00T	.00	.00	.56
.00	.00	.00	.00	.00T	.00	.00	.00	.00	.00
.00	1.00	.00	.00T	.00T	.00T	1.00	.00	.00	2.31
.00	.00	.00	.00	2.00	.00	.00	.50	.00	9.50
.00	.00T	.00	.00	.00	.00	.00	.00	.00	.00
3.00	55.00	12.50	38.00	40.50	2.25	90.00	.75	2.25	345.81
3.00	1.50T	.00	4.00	.00T	.30T	2.00	.00	.00	15.17
53.50	63.50	13.50	42.00	64.33	2.55	93.00	1.31	2.25	428.04

TABLE 27H. C & D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 04/72									
	100	101	102	103	104	104H	105AB	105	105H	106
ALEWIVES	.60	3.76	.00	.00	.00	.00	.00	3.76	6.67	
AMERICAN EEL	.00	.00	.00T	.00	.48	8.00	20.83T	.40	.00	
ANCHOVIES	.00	.00	.00	.00	.00	.00	.00	.00	.00	
BLUE HERRING	.00	.00	.00	.00	.00	.00	.00	.00	.00	5
BULLHEADS	.00T	2.00	45.08	.00	11.25	.00	13.33	44.00	14.13	46
CATFISH WHITE	.00	.00	.00	.00	.00	.00	.00	1.67	.00	
CHNL CATFISH	.50	.00	6.25T	3.10	5.92	16.00	.24	1.67	3.33	2
DARTER JOHNNY	.00	.00	.00T	.00	.00	.00	.00T	.00	.00	
HOGCHOKER	.06	.24	.00T	.00T	2.00T	2.00	.50T	1.28	.80	
RANGIA CLAMS	.00	.00	.00	.00	.00	1.20	.00T	.00	.00	
SCALED CARP	.00	.00	.00	.00	.00	.00	20.00	.00	.00	
SHINER SPOTTL	.00	.00	.00	.00T	.00	.00	.00	.00	.00	
STRIPED BASS	.50	2.42	.00	.00	5.25	8.00	2.00	28.00	6.67	5
WHITE PERCH	14.00	34.25	81.03	7.75	43.50	44.80	67.50	59.33	173.33	142.
YELLOW PERCH	.00	.00	.00	.00T	.00	.00	.42	.00	.00	
TOTALS	15.66	42.67	132.36	10.85	68.40	80.00	124.82	140.11	204.93	201



2

04/72

5AB	105	105H	106AB	106	106H	107	108	
.00	3.76	6.67	.00	3.50	.00	.00	.50	18.79
.83T	.40	.00	.00T	.00	.00	.00	.00	29.71
.00	.00	.00	.00	.00	.00	.00	.00T	.00
.00	.00	.00	5.00	.00	.00	.00	.00T	5.00
3.33	44.00	14.13	46.00	.00T	13.33	.00	.00	189.13
.00	1.67	.00	.00	.00	.00	.00	.00	1.67
.24	1.67	3.33	2.50	.00	3.33	.36	.25	43.45
.00T	.00	.00	.00	.00	.00	.00	.00	.00
.50T	1.28	.80	.00T	.00	6.67	.00	.00T	13.55
.00T	.00	.00	.00	.00	.00	.00	.00	1.20
.00	.00	.00	.00	.00	.00	.00	.00	20.00
.00	.00	.00	.00	.00	.00	.00	.00	.00
2.00	28.00	6.67	5.00	1.06	20.00	.36	.00	79.26
7.50	59.33	173.33	142.50	4.75	273.34	4.24	11.20	961.52
.42	.00	.00	.00	.00	.00	.00	.00	.42

24.82 140.11 204.93 201.00 9.31 316.67 4.96 11.95 1363.69

TABLE 27I. C &amp; D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 05/72									
	100	101	102	103	104	104H	105AB	105	105H	106A
ALEWIVES	.00	.00	.00	.00	.00	.00	.00T	.00	.00	.00
AMERICAN EEL	.12	4.75	.30	3.00	1.10	14.00	.00	1.25T	.00	6.00
ANCHOVIES	.00	.00	.00T	.00T	.00	1.44	.00	.00	.00T	.00
BLUE HERRING	2.50	.00	.00	.30	1.25	.00	.00	.00	.00	.00
BULLHEADS	1.00	14.16	18.00	9.50	2.30	8.00	42.50	56.25	.00	23.75
CATFISH, WHITE	.00	.00	.00	.00	.00	2.00	.00	.00	.00	.00
CHNL CATFISH	17.75	13.70	11.25	1.25	2.50	2.00	45.00	12.50	1.80	.75
CRAPPIE, WHITE	.00	.00	.00T	.00	.00	.00	.00	.00	.00	.00
CROAKER, AT	.00	.00	.00	.00	.00	.00T	.00	.00	.00	.00
HOGCHOKER	9.50	5.60	2.50	.30	11.25	8.00	7.40	2.50	.00T	.00
MENHADEN	.00	.00	.00	.00	.00	.48	.00	.00	.00	.00
SCALED CARP	.00	.00	.00	.60	.00	.00	.00	.00	.00	.00
SHINER, SPOTTL	.30	.00	.00	.00T	.00	.00	.00	.00	.00	.00
STRIPED BASS	.50	5.50	.00	.12	2.50	.00	.00	.00	.00T	.00
PUMPKINSEED	.00	.00	.30T	.00T	.00	.00	.00	.00	.00	.00
WHITE PERCH	71.50	31.00	77.50	15.25	51.75	44.00	95.00	15.00	40.00	44.25
YELLOW PERCH	.00	.00	.00	.24	.00	.00	.00	.00	.00	.00
LARVAL CLUPEID	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
RANGIA SHELLS	.00	.00	.00T	.00	.00	.00T	.00	.00T	.00	.00
TOTALS	103.17	74.71	109.85	30.56	72.65	79.92	189.90	87.50	41.80	74.00



2

L SURVEY

MILE TRAWLED 05/72

	104H	105AB	105	105H	106AB	106	106H	107	108	
0	.00	.00T	.00	.00	.00	.00	.00	.00	.00	.00
0	14.00	.00	1.25T	.00	6.00T	1.00	.00	.00	2.00T	33.52
0	1.44	.00	.00	.00T	.00T	.00	.00	.00T	.00T	1.44
5	.00	.00	.00	.00	.00	.00	.00	3.75	.00	7.80
0	8.00	42.50	56.25	.00	23.75	.06	.00	.00	15.00	190.52
0	2.00	.00	.00	.00	.00	.00	.00	.00	.00	2.00
0	2.00	45.00	12.50	1.80	.72	19.75	.00	22.50	2.00	152.72
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	.00T	.00	.00	.00	.00	.00	.00	.00	.00T	.00
5	8.00	7.40	2.50	.00T	.00T	9.50	10.00	.30	3.40	70.25
0	.48	.00	.00	.00	.00	.00	.00	.00	.00	.48
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.60
0	.00	.00	.00	.00	.00	.00	.00	.00T	.00	.30
0	.00	.00	.00	.00T	.00	.00	.00	.00	.00	8.62
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.30
5	44.00	95.00	15.00	40.00	44.25	28.50	70.00	13.75	53.00	650.50
0	.00	.00	.00	.00	.00T	.00	.00	.00	.00	.24
0	.00	.00	.00	.00	.00	.00	.00	.00	.00T	.00
0	.00T	.00	.00T	.00	.00	.00	.00T	.00	.00	.00

65 79.92 189.90 87.50 41.80 74.72 58.81 80.00 40.30 75.40 1119.29

TABLE 27J. C & D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 06/72									
	100	101	102	103	104	104H	105AB	105	105H	1
ALEWIVES	.00	.00	.00	.00T	.00	.00	.00	.00	.00	
AMERICAN EEL	.68	.24	.30	.00	.12	.96	.50	.24	.00	
ANCHOVIES	.00	.00T	.00	.00T	.00	.00T	.00T	.00	.50	
BLUE CRABS	.00	.18	.00	.00	.00	.00	.00	.00	.00	
BLUE HERRING	.00	.00	.00T	.00	.00	.00	.00	.00	.00	
BULLHEADS	.00	.50	1.50	2.00	.00	14.00	11.67	.00	1.00	2
CHNL CATFISH	.86	.00	2.18	.50	.00	12.00	1.75	.00	.12	
DARTER, JOHNNY	.00	.00	.00	.00	.00	.00	.00	.00	.00T	
HOGCHOKER	.00	.00T	.00	.00T	.00	2.88	.00	.06T	.00	
MENHADEN	.00T	4.97	.30	.00	.74T	3.92	.50T	3.31T	.24	
MUTTONFISH	.00	.00	.00	.00	.00	.00	.00T	.00	.00	
SCALED CARP	.00	.00	.00	21.50	.00	15.00	.00	.00	.00	
SHINER, SPOTTL	.00	.00	.06	.50	.00	2.00	.00T	.00	.12	
SILVERSIDES	.00	.00	.00	.00T	.00	.00	.00	.00	.00	
SPOT	.00	.00	.00	.00	.00	.00T	.80	.00T	.00T	
STRIPED BASS	.00	.30	.00	.06	.00	.00	.00	.06	.00	
PUMPKINSEED	.00	.00	.00	.00	.00	.00	.00T	.00	.00	
WHITE PERCH	2.75	4.50	7.75	64.63	4.84	26.00	76.25	10.75	14.50	3
YELLOW PERCH	.00	.00	.00	.12	.00	1.44	.00	.00	3.00	
GOLDFISH	.00	.00	.00	.00	.00	8.00	.00	.00	.00	
RANGIA SHELLS	.00	.00	.00T	.00	.00	.00	.00	.00	.00	
TOTALS	4.29	10.69	12.09	89.31	5.70	86.20	91.47	14.42	19.48	



2

LED 06/72									
105AB	105	105H	106AB	106	106H	107	108		
.00	.00	.00	.00	.00	.00	.06	.00	.06	
.50	.24	.00	1.00	.00	.00T	.06	.93	5.03	
.00T	.00	.50	.48T	.00	.00T	.00	.00	.98	
.00	.00	.00	.24	.00	.00	.00	.00	.42	
.00	.00	.00	.00	.00	.00	.00	.00T	.00	
11.67	.00	1.00	22.00	.00	6.00	.00	.25	58.92	
1.75	.00	.12	1.44	2.30	2.50	.00	4.75	28.40	
.00	.00	.00T	.00	.00	.00	.00	.00	.00	
.00	.06T	.00	.00	.12T	1.00	.12	.12T	4.30	
.50T	3.31T	.24	1.56	.00	.00T	.00T	.00	15.54	
.00T	.00	.00	.00	.00	.00	.00	.00	.00	
.00	.00	.00	.00	.00	.00	.00	.00	36.50	
.00T	.00	.12	.00T	.00	.00	.00	.00	2.68	
.00	.00	.00	.00	.00	.00	.00	.00	.00	
.80	.00T	.00T	.00T	.00	.00T	.00	.00T	.80	
.00	.06	.00	.36	.00	.00	.00	.50	1.28	
.00T	.00	.00	.00	.00	.00	.00	.00	.00	
76.25	10.75	14.50	33.00	2.25	17.50	.90	2.00	267.62	
.00	.00	3.00	.00	.00	.00T	.00	.00	4.56	
.00	.00	.00	.00	.00	.00	.00	.00	8.00	
.00	.00	.00	.00	.00	.00	.00	.00	.00	
5.20	91.47	14.42	19.48	60.08	4.67	27.00	1.14	8.55	435.09

TABLE 27K. C & D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 07/72									
	100	101	102	103	104	104H	105AB	105	105H	106A
AMERICAN EEL	.00T	.00	.30	8.50	.06	1.50	1.00	.06	.00	1.75
ANCHOVIES	.00T	.00	.00	.00	.00	.00	.00	.00	.00	.00
BLUE CRABS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
BULLHEADS	.00	.00	2.49	11.75	.00	8.00	27.00	1.24	11.50	12.75
CATFISH, WHITE	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CHNL CATFISH	.00	.24	.00	4.12	.24	3.00	10.48	.75	3.50	8.25
CROAKER, AT.	.00	.00	.00	.00	.00	.00	.24	.00	.00	.00
DARTER, JOHNNY	.00	.00	.00	.00	.00	.00	.00	.00	.00T	.00
HOGCHOKER	.00	.00	.00T	.00T	.24	.00	13.00	.06T	.00	.00
MENHADEN	.00T	.00T	.00	.00T	.00	.00	.00T	.00T	.00	.00
SCALED CARP	.00	.00	.00T	2.75	.00	.00	.00	.00	.00	15.00
SHINER, SPOTTL	.00	.00T	.00	.00	.00	.00	.00	.00	.00	.00
STRIPED BASS	.00	.50	.00	.00	.00	.00	.00	.00	.00	.00
WHITE PERCH	2.24	3.48	9.49	5.00	1.50	30.00	40.00	10.25	.00	13.00
YELLOW PERCH	.00	.06	.36	3.50	.00	.50	.00	.24	.12	.00
CRAYFISH, FRESHW.	.00	.00	.00	.12	.00	.00	.00	.00	.00	.00
RANGIA SHELLS	.00	.00	.00	.00	.00	.00T	.00	.00	.00T	.00
TOTALS	2.24	4.28	12.64	35.74	2.04	43.00	91.72	12.60	15.12	50.00



2

VEY

TRAWLED 07/72

4H	105AB	105	105H	106AB	106	106H	107	108	
.50	1.00	.06	.00	1.75	.00	.36	.06	.00	13.59
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00T	.00	.00	.00	.00	.00
.00	27.00	1.24	11.50	12.75	.00	12.00	.00	.00	86.73
.00	.00	.00	.00	.00	.06	.00	.00	.00	.06
.00	10.48	.75	3.50	8.25	.12	1.20	.00	.00	31.90
.00	.24	.00	.00	.00	.00	.00	.00	.00	.24
.00	.00	.00	.00T	.00	.00	.00	.00	.00	.00
.00	13.00	.06T	.00	.06T	.00	2.00	.00	.00	15.36
.00	.00T	.00T	.00	.00T	.00T	.00	.00T	.00	.00
.00	.00	.00	.00	15.00	.00	.00	.00	.00	17.75
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.50
.00	40.00	10.25	.00	13.00	1.00	18.48	.12T	.75T	135.31
.50	.00	.24	.12	.00	.00	.00	.00	.00	4.78
.00	.00	.00	.00	.00	.00	.00	.00	.00	.12
.00T	.00	.00	.00T	.00	.00	.00	.00	.00	.00
43.00	91.72	12.60	15.12	50.81	1.18	34.04	.18	.75	306.34

TABLE 27L. C & D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 08/72									
	100	101	102	103	104	104H	105AB	105	105H	106AB
ALEWIVES	.00	.00T	.00	.60	.00	.00	.00	.00	.00	.60
AMERICAN EEL	2.24	2.00	4.00	.96	.12	.00T	.60	1.00	.00	35.00
ANCHOVIES	.00	.00	.00	.00	.00T	.00T	.00	.06	.60	.60T
ATL SHRIMP	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
BLUE CRABS	.00	.00	.00	.00	.00	1.00	.00	.24	.00	.00
BULLHEADS	.00	12.00	13.25	.72	.50	6.79	61.80	4.06	.00	57.50
CATFISH, WHITE	.00	.00	1.00	.48T	.75	.00	.00	.00	.00	.00
CHNL CATFISH	.18	.74	4.50	8.00	8.50	.73	38.00	2.84	.00T	13.00T
CROAKER, AT.	.00	.00	.00	.00	.00	.00	.60	.12	.00	.00
DARTER, JOHNNY	.00T	.00T	.00	.00	.00	.00	.00	.00	.00	.00
GIZZARD SHAD	.50	.00	.00	11.00	.00	.00	.00	.00	.00	.00
GRAY TROUT	.00	.00	.00	.00	.00	.00	.00	1.60	.00	.00T
HOGCHOKER	.00T	1.18	.00T	.24	.00	.00T	3.60T	.00T	.00T	.00T
MENHADEN	.00T	.00	.00T	.00	.00	.00	.00	.00T	.00T	.00T
MIRROR CARP	.00	.00	.00	10.00	.00	.00	.00	.00	.00	.00
PIPEFISH	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00T
RANGIA CLAMS	.00	.00	.00T	.00	.00	.00T	.00	.00	.00	.00T
SAND PERCH	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
SCALED CARP	7.00	.00	1.50	15.50	3.00	.00	.00	.00	10.00	7.50
SHINER, SPOTTL	.00	.00	.00	.84	.00	.00	.00	.00	.00T	.00
SPOT	8.25	.50T	.00	.00	.00	.00	.60	.18	.00T	6.20
STRIPED BASS	.00	.00T	.00	.00	.00	.00	6.00	.00	.00	1.80
PUMPKINSEED	.00	.00T	.00	.00	.00	.00	.00	.00	.00	.00
WHITE PERCH	3.75	12.74	22.75	94.00	3.50	54.55	142.50T	7.62	30.00	113.60
YELLOW PERCH	.00	.00	1.06	.24T	.00	.00	2.40	.00	.60	.00
TOTALS	21.92	29.16	48.06	142.58	16.37	63.06	256.10	17.72	41.20	235.80



2

MLED 08/72

	105AB	105	105H	106AB	106	106H	107	108	
	.00	.00	.00	.50	.00	.00	.00	.00	1.20
T	.60	1.00	.00	35.00	.00T	.00T	.00T	.75	46.67
T	.00	.06	.60	.60T	.12T	.00T	.24T	.00T	1.62
	.00	.00	.00	.00	.00	.00	.00T	.00T	.00
	.00	.24	.00	.00	.00	2.00	.00	.00	3.24
	61.80	4.06	.00	57.50	2.00	4.00	.00	.84	163.46
	.00	.00	.00	.00	.00	.00	.06	.00	2.29
	38.00	2.84	.00T	13.00T	20.12	.00	9.00	2.72	108.33
	.60	.12	.00	.00	.00	.00	.24	.06	1.02
	.00	.00	.00	.00	.00	.00	.00	.00	.00
	.00	.00	.00	.00	.00	.00	.00	.00	11.50
	.00	1.60	.00	.00T	1.24	.00T	6.75	1.93	11.52
T	3.60T	.00T	.00T	.00T	.00T	.00	.00T	.12T	5.14
	.00	.00T	.00T	.00T	.00T	.00	.00	.00	.00
	.00	.00	.00	.00	.00	.00	.00	.00	10.00
	.00	.00	.00	.00T	.00	.00	.00	.00	.00
T	.00	.00	.00	.00T	.00	.00	.00	.00	.00
	.00	.00	.00	.00	.00	.00	.00	.30	.30
	.00	.00	10.00	7.50	2.00	2.00	.00	.00	48.50
	.00	.00	.00T	.00	.00	.00	.00	.00	.84
	.60	.18	.00T	6.20	.00	.00T	.00	.00	15.73
	6.00	.00	.00	1.80	.00T	.00	.00	.00	7.80
	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	142.50 T	7.62	30.00	113.60	5.24	10.00	1.35	5.00	506.60
0	2.40	.00	.60	.00	.00	.00	.00	.00	4.30

06 256.10 17.72 41.20 235.80 30.72 18.00 17.64 11.72 950.05

AD-A073 695

MARYLAND UNIV SOLOMONS NATURAL RESOURCES INST

F/G 8/8

HYDROGRAPHIC AND ECOLOGICAL EFFECTS OF ENLARGEMENT OF THE CHESA--ETC(U)

SEP 73 D E RITCHIE, T S KOO

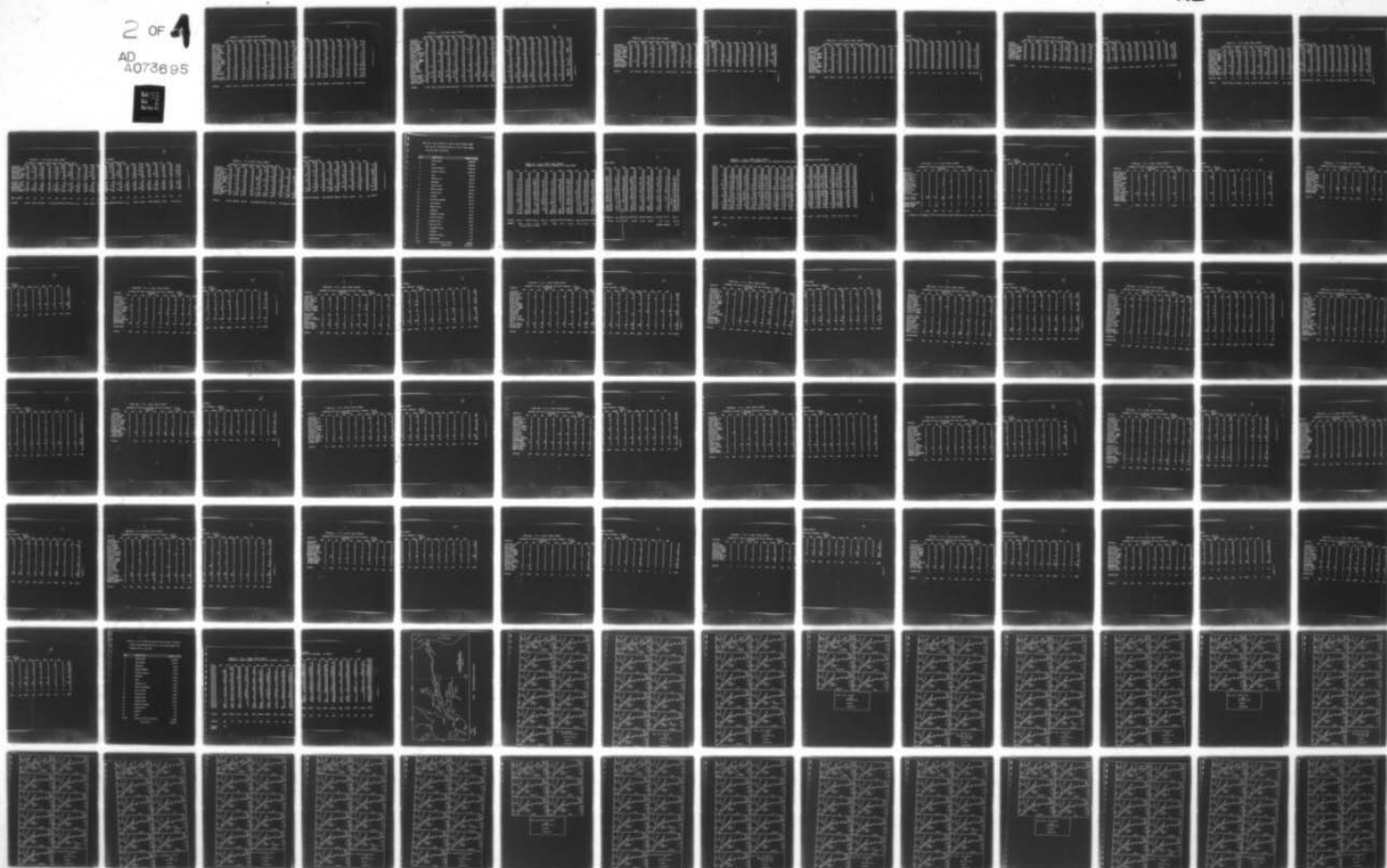
DACW61-71-C-0062

NL

UNCLASSIFIED

NRI-REF-74-71

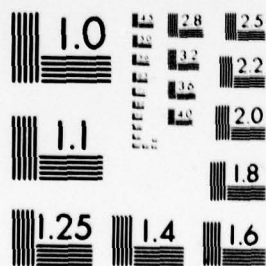
2 OF 4  
AD  
A073695





2 OF 4

AD  
A073695



MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

TABLE 27M. C & D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 10/72									
	100	101	102	103	104	104H	105AB	105	105H	106AB
ALEWIVES	.43	.48	.24	.00	.43	3.50	.00T	1.50	1.50	4.50
AMERICAN EEL	.00T	.00	.00	.00	.00	.00	.00	.00	.00	.00
ANCHOVIES	.31	1.29	.18	.00T	.24	.72	.00T	1.80	.60	5.70
ATL SHRIMP	.00T	.00T	.00T	.00T	.00	.00	.00	.00	.00	.00T
BLUE CRABS	.00T	.50	.00	.24	.00	.00	.00	.00	.00	.00T
BLUE HERRING	.00	.18	.00T	.00T	.00	.00	.00	.00	.00	.00
BLUEFISH	.00	.00	.00	.00	.00T	.00	.00	.00	.00	.00
BULLHEADS	.00	.00	.00	3.36	.00	1.00	41.50	1.12	.00	3.00
BUTTERFISH	.00	.00	.00T	.00	.00	.00	.00	.00	.00	.00
CHNL CATFISH	.00T	.12	.24	8.00	1.12	.00	4.24T	1.30	2.00	.00T
DARTER, JOHNNY	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00T
GIZZARD SHAD	.00	.00	.06	.00	.00	.00	.00	.00	.00	3.00
GRAY TROUT	.25	.24T	.00T	.00	.12	.00	.00T	.68	.48	3.73
HOGCHOKER	.00	.50	.12	.00T	.00	.00T	6.00	.06	.00T	.00T
MENHADEN	1.00	2.62	.12T	6.00	.48	5.00	.00T	1.16	1.00	15.50
PIPEFISH	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
SCALED CARP	.00	1.50	.00	48.00	.00	.00	71.00	.00	.00	.00
SILVERSIDES	.00	.00	.00T	.00	.00	.00	.00	.00	.00	.00
SPOT	.42	4.00	.50	10.00	.00T	3.00	12.84	.54	1.50	13.00
STRIPED BASS	.54	.00	.00	.36	.00	.24	4.00T	.75	.00	.00T
WHITE PERCH	19.10	5.75	1.50	72.00	.12	4.00	72.50	2.11	1.00	37.50
TOTALS	22.05	17.18	2.96	147.96	2.51	17.46	212.08	11.02	8.08	85.93



2

0/72	105	105H	106AB	106	106H	107	108	
00T	1.50	1.50	4.50	.55	2.00	.00T	.30	15.43
00	.00	.00	.00	.00	.00	.00	.00	.00
00T	1.80	.60	5.70	.42	3.36	.75T	1.60	16.97
00	.00	.00	.00T	.00	.00T	.00T	.00T	.00
00	.00	.00	.00T	.00T	.00	.00T	.50T	1.24
00	.00	.00	.00	.00	.00	.00	.00	.18
00	.00	.00	.00	.00	.00	.00	.00	.00
00	1.12	.00	3.00	.00	.00	.12	.00	50.10
00	.00	.00	.00	.00	.00	.00	.00	.00
04T	1.30	2.00	.00T	.00T	.00T	.12T	.00	17.14
00	.00	.00	.00T	.00	.00	.00	.00	.00
00	.00	.00	3.00	.00	.00	.00	.00	3.06
00T	.68	.48	3.73	.24	.96	.54	.18	7.42
00	.06	.00T	.00T	.00	4.00	.60T	.00T	11.28
00T	1.16	1.00	15.50	2.49	.00	.24	.72	36.33
00	.00	.00	.00	.00	.00T	.00	.00	.00
00	.00	.00	.00	.00	68.00	.00	.00	188.50
00	.00	.00	.00	.00	.00T	.00	.00	.00
04	.54	1.50	13.00	.31	28.00	.30	.00	74.41
00T	.75	.00	.00T	.00	.96	.78	.00	7.63
50	2.11	1.00	37.50	2.17	28.00	1.75	.75	248.25
0.08	11.02	8.08	85.93	6.18	135.28	5.20	4.05	677.94

TABLE 27N. C & D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 11/72									
	100	101	102	103	104	104H	105AB	105	105H	106AB
ALEWIVES	.75	2.50	.74	.00	2.70	.00	.00T	.00	2.00	7.50
AMERICAN EEL	.00	.00	1.50	.00	.00	.00	.00	.00	.00	.00
ANCHOVIES	.06T	.66	.00T	.00	.30T	.24	.00	.00T	.48	.12T
ATL SHRIMP	.00T	.00	.00T	.00	.00T	.00	.00	.00T	.00	.00T
BLUE CRABS	.00	.00	.00	.00	.60	.00	.00T	.00	.00	.00
BLUE HERRING	.00	.00	.00	.00	.00	.00T	.00T	.00	.00T	.00T
BULLHEADS	.00	3.00	1.48	.00	5.00	.00	19.00	.25	.00	8.75
CATFISH, WHITE	1.50	.00	6.72	43.50	.00	.00	.00	.50	.00	.00
CHNL CATFISH	1.25	.00	18.00	24.00	23.75	.00	6.50	.00	4.00	3.75T
CRAPPIE, WHITE	.00	.00	.00	.00	.00	.00	.12	.00	.00	.00
CROAKER, AT.	.00	.00	.00	.00	.30	.00	.00	.00T	.00	.00
DARTER	.00	.00	.00	.00T	.00	.00	.00	.00T	.00T	.00
GIZZARD <sup>JOHNNY</sup> SHAD	.00	.30	13.48	.12	.30	1.50	.24	.00	.00	.06
GRAY TROUT	.06	.00	.24	.00	2.40	.00	.00	.00T	.00T	.00T
HOGCHOKER	.00	.00	.12	.00T	.30	.00	.00	1.00	.00T	.00T
MENHADEN	.25	12.25	.00	.00	2.50	.00	8.50	1.50	.00	.25
MUD CRAB	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
SAND PERCH	.00	.00	.00	.00	.00T	.00	.00	.00T	.00	.00
SCALED CARP	.00	4.00	21.00	33.50	10.00	.00	73.80	.00	.00	.00
SPOT	.00T	14.50	8.50	.00	14.05	.00	.74	2.00T	2.00	2.56
STRIPED BASS	.00	.75	5.75	4.50	2.10	.00	.00	5.00	8.00	1.25
WHITE PERCH	1.50	45.25	67.20	19.50	181.25	3.00	7.00	11.50	84.00	72.50
YELLOW PERCH	.00	.00	.00	.00	.00	.00	.00	.00	.48	.00
CRAYFISH, FRSHWT	.00	.00	.00	.12	.00	.00	.00	.00	.00	.00
RANGIA SHELLS	.00	.00	.00	.00	.00	.00T	.00	.00	.00	.00T
TOTALS	5.37	83.21	144.73	125.24	245.55	4.74	115.90	21.75	100.96	96.74



AWLED 11/72

	105AB	105	105H	106AB	106	106H	107	108	
	.00T	.00	2.00	7.50	.80	1.00	.06	.43	18.48
	.00	.00	.00	.00	.00	.00	.06	.12	1.68
	.00	.00T	.48	.12T	.06T	.12	.06T	.62	2.72
	.00	.00T	.00	.00T	.00	.00	.00T	.00T	.00
	.00T	.00	.00	.00	.00	.00	.00	.00	.60
T	.00T	.00	.00T	.00T	.00	.00	.00	.00T	.00
	19.00	.25	.00	8.75	.00	2.00	.00	.00	39.48
	.00	.50	.00	.00	.00	.00	.00	.00	52.22
	6.50	.00	4.00	3.75T	1.25	.00	5.25	3.00	90.75
	.12	.00	.00	.00	.00	.00	.00	.00	.12
	.00	.00T	.00	.00	.00	.00	.00	.00	.30
	.00	.00T	.00T	.00	.00	.00	.00	.00	.00
	.24	.00	.00	.06	.00	.00	.00	.00	16.00
	.00	.00T	.00T	.00T	.06T	.00	.00T	.12T	2.88
	.00	1.00	.00T	.00T	.06T	.00T	.00	.56	2.04
	8.50	1.50	.00	.25	.00T	.00	.00T	.25	25.50
	.00	.00	.00	.00	.00	.00	.00	.00T	.00
	.00	.00T	.00	.00	.06	.00	.00	.00	.06
	73.80	.00	.00	.00	.00	.00	.00	.00	142.30
	.74	2.00T	2.00	2.56	.06	.50	.12	.37	45.40
	.00	5.00	8.00	1.25	.00	3.50	.00	.50	31.35
	7.00	11.50	84.00	72.50	4.50	22.00	6.50	10.50	536.20
	.00	.00	.48	.00	.00	.00	.00	.00	.48
	.00	.00	.00	.00	.00	.00	.00	.00	.12
T	.00	.00	.00	.00T	.00T	.00	.00	.00	.00
	.74	115.90	21.75	100.96	96.74	6.85	29.12	12.05	16.47 1008.68

TABLE 270. C & D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 12/72									
	100	101	102	103	104	104H	105AB	105	105H	106A
BULLHEADS	.00	1.20	.18	.18	.00	.00	25.00	.00	.00	.00
CATFISH, WHITE	.00	4.00	1.00	1.18	.25	.00	38.00	.00	.00	.00
CHNL CATFISH	.00	.48	.06	5.50	2.12	.12	77.00	.75T	.36	.00
DARTER, JOHNNY	.00	.00	.00	.00T	.00	.00	.12T	.00	.00	.00
GIZZARD SHAD	.00	.00	.00	.12	.00	.00	3.41	.00	.00	.00
SCALED CARP	.00	.00	.00	45.00	.00	.00	.00	.00	.00	.00
SHINER, SPOTTL	.06	.00	.00T	.54	.00	.00T	.54	.00T	.00T	.10
STRIPED BASS	.00	.00	.00	.00	.00	.00	.00	.00T	.00	.00
PUMPKINSEED	.00	.00	.00	.00	.00	.00	.00	.00	.00T	.00
WHITE PERCH	.66	61.00	.24	.12	.24	4.00	3.00	1.06	28.00	1.20
YELLOW PERCH	.00	.00	2.18	4.75	.56	.12	.55	.00	.00T	.30
SMALLMOUTH BASS	.00	.00	.00	.12	.00	.00	.00	.00	.00	.00
GOLDEN SHINER	.00	.00	.00	.00	.00	.00	.12	.00	.00	.00
TOTALS	.72	66.68	3.66	57.51	3.17	4.24	147.74	1.81	28.36	2.60



2

**SURVEY**

**E TRAWLED 12/72**

104H	105AB	105	105H	106AB	106	106H	107	108	
.00	25.00	.00	.00	.48	.00	1.00	.00	.00	28.04
.00	38.00	.00	.00	.00	.00	.00	.00	.00	44.43
.12	77.00	.75T	.36	.00T	.06	.96	.00	.00	87.41
.00	.12T	.00	.00	.00T	.00	.00T	.00	.00	.12
.00	3.41	.00	.00	.00T	.00	.00	.00	.00	3.53
.00	.00	.00	.00	.00	.00	.00	.00	.00	45.00
.00T	.54	.00T	.00T	.18	.00T	1.00	.00T	.00T	2.32
.00	.00	.00T	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00T	.00	.00	.00	.00	.00	.00
4.00	3.00	1.06	28.00	1.25	1.00	5.00	.30	.12T	105.99
.12	.55	.00	.00T	.30	.00	.36	.00	.00	8.82
.00	.00	.00	.00	.00	.00	.00	.00	.00	.12
.00	.12	.00	.00	.00	.00	.00	.00	.00	.12
4.24	147.74	1.81	28.36	2.21	1.06	8.32	.30	.12	325.90

TABLE 27P. C & D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 01/73									
	100	101	102	103	104	104H	105AB	105	105H	106AB
AMERICAN EEL	.00	.00	.00	.00	.00	.00	.00	.00	.00	.12
BLUE CRABS	.00	.00	.00	.00	.00	.00	.00	.00T	.00	.00T
BULLHEADS	.00	.00	.62	.00	.00	.00	.00	.00	.00	.00
CATFISH WHITE	.00T	.00	.00	.00	.60	.00	.00	.00	.00	.50
CHNL CATFISH	.96	.00T	2.75	.00	5.50T	.00	.00	1.00T	.00	1.25
DARTER JOHNNY	.00	.00	.00	.00	.00	.00	.00	.00	.00	.36
GIZZARD SHAD	.00T	3.00	.00	.00	.00	.00	.00	.00	.00	.00
HOGCHOKER	.00	.18	.00	.00	.00	.00	.00	.00	.00	.00T
LGMTH BASS	.00	.00	5.00	.00	.00	.00	.00	.00	.00	.00
RANGIA CLAMS	.00	.00	.00	.00	.00T	.00	.00	.00	.00	.48
SHINER SPOTTL	.00T	.00	.12	.00	.00	.00	.00	.00	.00	.74
STRIPED BASS	.00	.36	.00	.00	.00	.00	.00	.50	.00	.00
TOADFISH	.00	.12	.00	.00	.00	.00	.00	.00	.00	.00
WHITE PERCH	3.61	75.00	.00	.00	.78	.00	.00	1.25	.00	.43
YELLOW PERCH	.06	.12	.00	.00	.00	.00	.00	.00	.00	1.24
TOTALS	4.63	78.78	8.49	.00	6.88	.00	.00	2.75	.00	5.12



2

SURVEY

FILE TRAWLED 01/73

	104H	105AB	105	105H	106AB	106	106H	107	108	
	.00	.00	.00	.00	.12	.00	.00	.00	.00	.12
	.00	.00	.00T	.00	.00T	.00	.00	.00	.00	.00
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.62
	.00	.00	.00	.00	.50	.00	.00	.00	.00	1.10
T	.00	.00	1.00T	.00	1.25	.00	.00	.00	.30T	11.76
	.00	.00	.00	.00	.36	.00	.00	.00	.00	.36
	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.00
	.00	.00	.00	.00	.00T	.00	.00	.00	.00	.18
	.00	.00	.00	.00	.00	.00	.00	.00	.00	5.00
T	.00	.00	.00	.00	.48	.00	.00	.00	.00	.48
	.00	.00	.00	.00	.74	.00	.00	.00	.00T	.86
	.00	.00	.50	.00	.00	.00	.00	.00	.00	.86
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.12
	.00	.00	1.25	.00	.43	.00	.00	.00	.00T	81.07
	.00	.00	.00	.00	1.24	.00	.00	.00	.00	1.42
8	.00	.00	2.75	.00	5.12	.00	.00	.00	.30	106.95

TABLE 27Q. C & D CANAL TRAWL SURVEY

SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 02/73										
	100	101	102	103	104	104H	105AB	105	105H	106AB
BLENNY	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00T
BULLHEADS	.00	.00	.00	1.75	.00	.00	11.00	.50	.00	1.50
CATFISH, WHITE	.00	.00	.00	.00	.36	.00	56.00	2.75	.12	.00
CHNL CATFISH	.00	.00T	.00	7.75	.50T	5.00	70.50	.00	5.00	3.37
DARTER, JOHNNY	.00	.00	.00	.00	.00	.12	.75	.00	.12	.55
GIZZARD SHAD	.00	.00	.00	1.00	.00	.12	3.18	.00	.00	.36
HOGCHOKER	.00	.00	.00	.00	.00T	.00	.00	.00	.00	.00
SHINER, SPOTTL	.00	.00T	.00	.24	.00T	1.50	3.50	.00T	.12	2.60
WHITE PERCH	.00	.00T	.00	.06T	.61	.36	11.75	1.50	.24	.37
YELLOW PERCH	.00	.25	.00	1.35	.00	1.50	1.68	.00T	.00	1.50
TOTALS	.00	.25	.00	12.15	1.47	8.60	158.36	4.75	5.60	10.25



2

SURVEY

LE TRAWLED 02/73

104H	105AB	105	105H	106AB	106	106H	107	108	
.00	.00	.00	.00	.00T	.00	.00	.00	.00	.00
.00	11.00	.50	.00	1.50	.12	.00	.00	.00	14.87
.00	56.00	2.75	.12	.00	.00	.00	.00	.00	59.23
5.00	70.50	.00	5.00	3.37	.06	4.50	.00	.00	96.68
.12	.75	.00	.12	.55	.00	.50	.00	.00	2.04
.12	3.18	.00	.00	.36	.00	.00	.00	.75	5.41
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
1.50	3.50	.00T	.12	2.60	.00T	3.00	.00	.00	10.96
.36	11.75	1.50	.24	.37	.48	1.00	.24	.06	16.67
1.50	1.68	.00T	.00	1.50	.00	.60	.06	.00	6.94

7 8.60 158.36 4.75 5.60 10.25 .66 9.60 .30 .81 212.80

TABLE 27R. C & D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 03/73									
	100	101	102	103	104	104H	105AB	105	105H	106AB
AMERICAN EEL	.00T	1.96	12.00	.00	.25	8.00	.48T	.00T	.00	.24
BULLHEADS	4.75	13.00	52.00	11.00	8.75	6.00	85.00	2.00	.00	6.75
CATFISH WHITE	.00	12.48	.00T	.00	.12	.00	36.00	.42	.00	.00
CHNL CATFISH	2.04	6.00	6.00	5.00	11.00	4.00	42.00	1.00	.00	2.30
DARTER, JOHNNY	.00	.00T	.00T	.00	.00	.24	.48	.00	.00	.72
GIZZARD SHAD	.60	.00	.00	.00	.00	.00	.00	.00	.00	.50
HICKORY SHAD	.00	.00	.00	.00	.00	.00	.00	.75	.00	.00
HOGCHOKER	.18T	.48T	.00	.00	.24	.24	.00T	4.75	.00	.06
MUD CRAB	.00	.00	.00	.00	.00	.00	.00	.00T	.00	.00
SCALED CARP	.00	15.00	.00	4.00	.00	40.00	.00	.00	.00	.00
SHINER, SPOTTL	.00	.00T	.00	.00	.00	1.00	.00	.06	.00	.06T
STRIPED BASS	.00	.18	.00	.00	.00	.00	.00	.00	.00	.00
PUMPKINSEED	.00	.00	.00	.00	.00	.00	.00	.00T	.00	.00
WHITE PERCH	55.00	54.00	31.00	1.20	28.50	22.00	39.00	45.00	.00	17.50
YELLOW PERCH	.00	.00	2.16	.00	.00	.00	2.48	.00	.00	.00
CRAYFISH, FRSH.	.00	.00	.00	.00	.00T	.00	.00	.00	.00	.00
TOTALS	62.57	103.10	103.16	21.20	48.86	81.48	205.44	53.98	.00	28.13



2

## SURVEY

E TRAWLED 03/73

104H	105AB	105	105H	106AB	106	106H	107	108	
8.00	.48T	.00T	.00	.24	1.00	8.00	.00	.00	31.93
6.00	85.00	2.00	.00	6.75	.50	8.00	.25	.00	198.00
.00	36.00	.42	.00	.00	.00	.00	.00	.00	49.02
4.00	42.00	1.00	.00	2.30	.18	1.92	.00T	.00	81.44
.24	.48	.00	.00	.72	.00	.48	.00	.00	1.92
.00	.00	.00	.00	.50	.00	.00	.00	.00	1.10
.00	.00	.75	.00	.00	.00	.00	.50	.00	1.25
.24	.00T	4.75	.00	.06	.24	4.00	.00	.00	10.19
.00	.00	.00T	.00	.00	.00	.00	.00	.00	.00
40.00	.00	.00	.00	.00	.00	.00	.00	.00	59.00
1.00	.00	.06	.00	.06T	.24T	5.28	.00T	.00	6.64
.00	.00	.00	.00	.00	.18	.00	.00T	.00	.36
.00	.00	.00T	.00	.00	.00	.00	.00	.00	.00
22.00	39.00	45.00	.00	17.50	23.00	152.00	7.50	1.00	476.70
.00	2.48	.00	.00	.00	.00	4.00	.00T	.00	8.64
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
81.48	205.44	53.98	.00	28.13	25.34	183.68	8.25	1.00	926.19

TABLE 278. C & D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 04/73									
	100	101	102	103	104	104H	105AB	105	105H	106AB
ALEWIVES	2.25	3.50	.00	.00	.00	4.00	.00	.75	.00	.00
AMERICAN EEL	16.00	3.00	21.00	.00	3.00	24.00	.60	.00T	.00	8.24
BLUE HERRING	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
BULLHEADS	.30	22.36	47.00	.00	11.40	14.00	14.80	.75	.00	29.36
CATFISH, WHITE	.00	.00	1.00	.00	.00T	.00	2.50	.00	.00	.00
CHNL CATFISH	8.50	.18	20.72	.00	9.00	.00T	64.30	.25	2.88	21.60
DARTER, JOHNNY	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00T
HOGCHUKER	1.92T	2.24	1.68	.00	4.20	4.00	.00T	1.75	2.00	.00T
RANGIA CLAMS	.00	.00	.00	.00	.00	.00T	.00	.00	.00	.00T
SCALED CARP	.00	.00	.00	.00	.00	.00	50.00	.00	.00	.00
STRIPED BASS	6.25	3.00	6.50	.00	10.25	2.00	.90	36.00	5.00	2.50
PUMPKINSEED	.00	.00	.00	.00	.00	.00	.00T	.00	.00	.00
WHITE PERCH	26.00	29.50	18.00	.00	65.48T	104.00	137.50	16.00	.00	25.36
YELLOW PERCH	.24	.00	.00	.00	.00	.00	.00	.00	.00	.00T
RANGIA SHELLS	.00	.00	.00	.00	.00	.00T	.00	.00	.00	.00
TOTALS	61.46	63.78	104.90	.00	103.33	152.00	270.60	57.50	9.88	87.06



2

AL SURVEY

MILE TRAWLED 04/73

	104H	105AB	105	105H	106AB	106	106H	107	108	
00	4.00	.00	.75	.00	.00	2.00	.00	.00	.00	12.50
00	24.00	.60	.00T	.00	8.24	.00	.00	.00	.00	75.84
00	.00	.00	.00	.00	.00	.36	.00	1.48	.00	1.84
40	14.00	14.80	.75	.00	29.36	.00	.00	.00	.00	139.97
00T	.00	2.50	.00	.00	.00	.00	.00	.00	.00	3.50
00	.00T	64.30	.25	2.88	21.60	.00	15.00	.00	.00	142.43
00	.00	.00	.00	.00	.00T	.00	.00T	.00	.00	.00
20	4.00	.00T	1.75	2.00	.00T	.12	.60	.00T	.00	17.51
00	.00T	.00	.00	.00	.00T	.00	.00	.00	.00	.00
00	.00	50.00	.00	.00	.00	.00	.00	.00	.00	50.00
25	2.00	.90	36.00	5.00	2.50	2.25	3.00	1.98	.00	79.63
00	.00	.00T	.00	.00	.00	.00	.00	.00	.00	.00
48T	104.00	137.50	16.00	.00	25.36	4.48	175.00	8.00	.00	611.32
00	.00	.00	.00	.00	.00T	.00	.00	.00	.00	.24
00	.00T	.00	.00	.00	.00	.00	.00	.00	.00	.00
0.33	152.00	270.60	57.50	9.88	87.06	9.21	193.60	11.46	.00	1124.78

TABLE 27T. C & D CANAL TRAWL SURVEY

	SUMMARY OF BIOMASS TOTALS PER MILE TRAWLED 05/73									
	100	101	102	103	104	104H	105AB	105	105H	106
ALEWIVES	.00	.00T	.00	.00	.00	.00	.00	.00	.00	.
AMERICAN EEL	5.00	5.00	.20	.00	.60	30.00	2.20	.00	.00	.
ANCHOVIES	.00	.00T	.00T	.00	.00	.00	.00	.00	.00	.
BLUE HERRING	.00	.00	.00	.00	.00T	.00	.00T	.00	.00	2.
BULLHEADS	6.75	37.50	1.00	.00	2.50	.00	20.50	.00	10.00	23.
CATFISH, WHITE	.00	.00	.00	.00	43.10	.00	.00	.00	.00	.
CHNL CATFISH	2.50	3.75	1.11	.00	32.50	20.00	6.50	1.25	.60	11.
GIZZARD SHAD	.00	.00	.00	.00	.00	.00	.00	.00	.00	.
HICKORY SHAD	.00	.00	1.50	.00	2.50	.00	.00	.00	.00	.
HOGCHOKER	18.25	8.75	.64	.00	3.70	10.00	4.00	.00T	10.00	.0
MENHADEN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
STRIPED BASS	.00	1.25	.50	.00	55.00	.00	1.50	.00	5.00	.0
PUMPKINSEED	.00	.60T	.00	.00	.00	.00	.00T	.00	.00	.0
WHITE PERCH	21.50	111.20	13.00	.00	161.50	122.40	43.28	2.75	165.00	95.2
YELLOW PERCH	.00	.00	.00	.00	.00	.00	.00	.00	.00T	.0
SCALED CARP	.00	18.00	16.50	.00	26.50	90.00	65.00	.00	74.00	13.0
TOTALS	54.00	186.05	34.45	.00	327.90	272.40	142.98	4.00	264.60	146.



SURVEY

FILE TRAWLED 05/73

104H	105AB	105	105H	106AB	106	106H	107	108	
.00	.00	.00	.00	.00	.60	.00	.00	.00	.60
30.00	2.20	.00	.00	.50	2.62	.00	.00	.00	46.12
.00	.00	.00	.00	.00T	.12	.00T	.36	.00	.48
.00	.00T	.00	.00	2.50	.90	.00T	1.25	.00	4.65
.00	20.50	.00	10.00	23.30	1.25	4.00	.00	.00	106.80
.00	.00	.00	.00	.00	.00	.00	.00	.00	43.10
20.00	6.50	1.25	.60	11.52	8.50	1.20	.60	.00	90.03
.00	.00	.00	.00	.00	1.88	.00	.00	.00	1.88
.00	.00	.00	.00	.00	2.50	.00	1.10	.00	7.60
10.00	4.00	.00T	10.00	.00	.90	2.64	.00T	.00	58.88
.00	.00	.00	.00	.00	1.25	.00	.00T	.00	1.25
.00	1.50	.00	5.00	.00T	5.00	.00T	1.30	.00	69.55
.00	.00T	.00	.00	.00	.00	.00	.00	.00	.60
122.40	43.28	2.75	165.00	95.23	39.99	26.00	3.06	.00	804.91
.00	.00	.00	.00T	.00	.00	.00	.00	.00	.00
90.00	65.00	.00	74.00	13.00	.00	.00	.00	.00	303.00

00 272.40 142.98 4.00 264.60 146.04 65.51 33.84 7.67 .00 1539.44

Table 28. List of fishes in order of total weight caught  
by trawl net in Maryland survey of C and D Canal region  
from June 1971 to May 1973.

Rank	Common name	Pounds of fish
1	White perch	7,696.08
2	Carp	1,796.80
3	Brown bullhead	1,788.92
4	Channel catfish	1,307.00
5	Spot	399.66
6	American eel	396.93
7	Hogchoker	383.11
8	Striped bass	361.08
9	White catfish	297.84
10	Gizzard shad	169.07
11	Alewife	132.50
12	Atlantic menhaden	121.31
13	Bay anchovy	117.54
14	Yellow perch	72.42
15	Weakfish	56.16
16	Blueback herring	44.33
17	Spottail shiner	30.89
18	Johnny darter	18.71
19	Hickory shad	8.85
20	Largemouth bass	5.00
21	Goldfish	2.75
22	Atlantic croaker	1.54
23	Pumpkinseed	1.40
24-39	Species with small catches	<u>620.81</u>
	Grand Total	15,831.30



1

**EACH MONTH**

[illegible]



TABLE 30 . C &amp; D CANAL TRAWL SURVEY

[illegible]

2

L SPECIES FOR EACH MONTH

	105	105H	106AB	106	106H	107	108
00	.000	.000	.000	.000	.000	.000	.000
00	.000	.000	.000	.000	.000	.000	.000
00	.000	.000	.000	.000	.000	.000	.000
00	.000	.000	.000	.000	.000	.000	.000
70	.106	1.377	1.589	.318	37.081	.265	.212
24	1.690	13.471	29.046	3.181	3.010	1.092	.531
16	1.783	10.154	25.746	.463	2.268	.620	.647
02	.291	5.255	17.811	1.544	28.997	.840	5.849
09	.582	3.727	8.181	2.942	11.634	1.645	.662
02	.779	3.011	12.574	1.026	17.334	.588	.588
05	3.154	9.812	15.030	.596	21.727	.306	.526
03	10.274	15.028	14.739	.683	23.221	.364	.876
06	7.817	3.735	6.676	5.254	7.147	3.600	6.736
03	3.314	4.477	13.809	1.073	6.206	.262	1.965
01	4.113	4.936	16.586	.385	11.112	.059	.245
06	1.865	4.337	24.820	3.234	1.895	1.857	1.234
03	1.626	1.192	12.675	.912	19.955	.767	.597
05	3.129	9.795	9.386	.665	2.825	1.169	1.598
03	.555	8.702	.678	.325	2.553	.092	.037
00	2.571	.000	4.787	.000	.000	.000	.281
17	2.232	2.632	4.817	.310	4.511	.141	.381
01	5.828	.000	3.037	2.736	19.832	.891	.108
08	4.540	5.072	5.285	.744	17.985	.656	.017
08	.260	17.188	9.486	4.255	2.198	.498	.000

07	2.826	6.884	11.838	1.612	12.714	0.827	1.215
----	-------	-------	--------	-------	--------	-------	-------



TABLE 31A C & D CANAL TRAWL SURVEY

SPECIES	NUMBERS OF FISH BY SPECIES PER MILE TRAWLED , 12/70										
	STATIONS										TOTALS
	100	101	102	103	104	104H	105AB	105	105H	106AB	106
ALEWIVES	0	0	0	0	0	0	2	0	0	0	1
AMERICAN EEL	0	0	1	0	0	0	0	0	0	0	0
ANCHOVIES	0	1	0	0	0	0	0	0	0	0	0
BLUE HERRING	0	0	0	0	0	0	0	0	0	0	0
BULLHEADS	0	0	0	29	0	0	0	0	0	0	0
CHNL CATFISH	0	1	0	5	62	0	0	7	36	0	3
CROAKER, AT.	0	0	0	20	0	0	0	0	0	0	3
DARTER, Johnny	0	0	0	57	7	0	0	0	6	0	0
BIZZARD SHAD	0	2	1	0	0	0	0	1	0	0	0
MOGCHOKER	0	0	0	1	6	0	0	0	6	0	11
MIRROR CARP	0	0	0	3	0	0	0	0	0	0	0
MUD CRAB	0	0	0	0	0	0	0	0	0	0	2
SHINER, Spottail	0	0	0	8	4	0	0	0	2	0	0
	0	0	0	1	0	0	0	0	0	0	0
WHITE PERCH	0	1200	7776	367	274	98	0	28	454	0	32
YELLOW PERCH	0	0	0	360	0	0	0	0	0	0	0
FOUR SPINE STICKLE.	0	0	0	1	0	0	0	0	0	0	0
GOLDEN SHINER	0	0	0	67	0	0	0	0	0	0	0
STRIPED BASS	0	7	103	0	0	0	0	0	0	0	1
TOTALS	0	1211	7881	919	353	100	0	36	504	0	53

In Table 31, A through x, "0" for the entire column indicates that no sample was taken; "0" means zero.

2

KEY

RAWLED , 12/70

TOTALS									
	105AB	105	105H	106AB	106	106H	107	108	
2	0	0	0	0	1	6	0	0	9
0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	2	3	5
0	0	0	0	0	0	0	0	0	29
0	0	7	36	0	3	418	1	0	533
0	0	0	0	0	3	0	0	0	23
0	0	0	6	0	0	120	0	0	190
0	0	1	0	0	0	0	0	0	4
0	0	0	6	0	11	256	1	0	281
0	0	0	0	0	0	0	0	0	3
0	0	0	0	0	2	0	0	0	2
0	0	0	2	0	0	6	1	0	21
0	0	0	0	0	0	0	0	0	1
98	0	28	454	0	32	78	16	20	10343
0	0	0	0	0	0	0	0	0	360
0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	67
0	0	0	0	0	1	2	6	4	123
00	0	36	504	0	53	886	27	27	11997

states that no sample was taken; "0" means zero fish caught.



TABLE 31B. C & D CANAL TRAWL SURVEY

SPECIES	NUMBERS OF FISH BY SPECIES PER MILE TRAWLED , 03/71									
	STATIONS									
	100	101	102	103	104	104H	105AB	105	105H	106
AMERICAN EEL	0	0	1	1	0	0	10	0	0	0
BLUE HERRING	0	0	0	0	0	0	0	0	0	0
BULLHEADS	0	17	128	5	2	0	98	0	0	0
CATFISH, WHITE	0	9	2	0	2	0	1890	0	0	0
CHNL CATFISH	0	25	34	8	1	0	0	0	0	0
CRAPPIE	0	0	1	0	0	0	0	0	0	0
DARTER, JOHNNY	0	6	8	19	0	0	0	0	0	0
HOGCHUCKER	0	9	6	0	0	0	0	0	0	0
LGMTH BASS	0	0	0	0	1	0	0	0	0	0
RANGIA CLAMS	0	0	0	0	0	0	0	0	0	0
SCALED CARP	0	0	0	0	0	0	0	0	0	0
SHINER, SPOTTAIL	0	0	1	4	0	0	0	0	0	0
WHITE PERCH	0	2159	138	102	4	0	1307	0	0	1
YELLOW PERCH	0	6	5	26	0	0	0	0	0	0
GOLDEN SHINER	0	0	0	0	0	0	0	0	0	0
STRIPED BASS	0	1	0	0	2	0	0	0	0	0
LARVAL WATERBUG	0	0	0	0	0	0	0	0	0	0
TOTALS	0	2232	324	165	12	0	3305	0	0	2

2

SURVEY

E TRAWLED , 03/71

TOTALS										
04H	105AB	105	105H	106AB	106	106H	107	108		
0	10	0	0	5	0	0	1	0	18	
0	0	0	0	1	0	0	0	0	1	
0	98	0	0	60	0	2	0	0	312	
0	1890	0	0	5	7	2	1	0	1918	
0	0	0	0	69	62	180	7	1	387	
0	0	0	0	0	0	0	0	0	1	
0	0	0	0	81	0	2	0	0	116	
0	0	0	0	55	1	0	0	0	71	
0	0	0	0	0	0	0	0	0	1	
0	0	0	0	1	0	0	0	0	1	
0	0	0	0	0	0	0	1	0	1	
0	0	0	0	2	0	0	0	0	7	
0	1307	0	0	1895	52	0	28	15	5700	
0	0	0	0	7	1	26	0	1	72	
0	0	0	0	0	1	2	0	0	3	
0	0	0	0	0	1	0	2	2	8	
0	0	0	0	1	0	0	0	0	1	
0	3305	0	0	2182	125	214	40	19	8618	



TABLE 31C. C & D CANAL TRAWL SURVEY

NUMBERS OF FISH BY SPECIES PER MILE TRAWLED, 04/71

SPECIES	STATIONS										TOTALS	
	100	101	102	103	104	104H	105AB	105	105H	106AB		
ALEWIVES	4	0	2	0	0	0	0	4	0	0		
BULLHEADS	4	0	11	0	0	4	0	5	2	0		
CATFISH, WHITE	0	0	2	0	0	4	0	6	0	0		
CHNL CATFISH	15	1	6	2	1	4	0	25	6	0		
DARTER, JOHNNY	0	1	0	10	0	8	0	0	0	0		
HOGCHOKER	5	1	0	0	0	0	0	9	0	0		
RANGIA CLAMS	1	0	0	0	0	2	0	0	0	0		
SCALED CARP	0	0	0	0	0	0	0	0	0	0		
SHINER, SPOTTAIL	0	0	0	2	0	10	0	0	0	0		
WHITE PERCH	2162	71	526	848	213	4332	0	434	520	0		
YELLOW PERCH	0	2	54	6	0	288	0	0	0	0		
GOLDEN SHINER	0	0	2	0	0	6	0	0	0	0		
STRIPED BASS	17	1	0	0	2	4	0	8	0	0		
TOTALS	2208	77	603	868	216	4662	0	491	528	0		

2

ED : 04/71

TOTALS

05AB	105	105H	106AB	106	106H	107	108	
0	4	0	0	10	10	0	14	44
0	5	2	0	2	10	0	0	38
0	6	0	0	13	0	0	0	25
0	25	6	0	68	18	0	3	149
0	0	0	0	0	0	0	0	19
0	9	0	0	34	2	2	0	53
0	0	0	0	0	0	0	0	3
0	0	0	0	2	0	0	1	3
0	0	0	0	0	0	1	0	13
0	434	520	0	372	550	118	267	10413
0	0	0	0	3	4	0	1	358
0	0	0	0	0	0	0	0	8
0	8	0	0	5	12	6	6	61
0	491	528	0	509	606	127	292	11187



TABLE 31D. C & D CANAL TRAWL SURVEY

SPECIES	NUMBERS OF FISH BY SPECIES PER MILE TRAWLED , 05/71									
	STATIONS								TOTALS	
	100	101	102	103	104	104H	105AB	105	105H	106A
ALEWIVES	0	1	0	0	0	1	2	0	5	0
AMERICAN EEL	0	18	3	0	12	30	83	25	24	
ANCHOVIES	0	0	0	0	0	0	0	1	0	
ATL SHRIMP	0	0	0	0	0	0	0	0	0	
BLUE HERRING	0	0	1	0	0	0	0	0	0	
BULLHEADS	39	2	8	0	12	12	74	31	72	2
CATFISH, WHITE	4	2	0	0	0	0	0	0	0	
CHNL CATFISH	116	10	39	0	17	30	78	5	24	
DARTER, JOHNNY	0	0	2	0	0	0	0	0	0	
HOGCHOKER	0	7	6	0	203	400	170	88	120	
MUD CRAB	0	0	0	0	0	0	0	5	0	
RANGIA CLAMS	0	0	0	0	0	0	3	0	0	
SCALED CARP	0	0	0	0	0	0	0	0	0	
SHINER, SPOTTAIL	0	1	0	0	0	0	0	0	0	
PUMPKINSEED	0	0	1	0	0	0	0	0	0	
WHITE PERCH	361	557	918	21	71	636	474	267	2354	6
STRIPED BASS	9	47	3	0	67	0	3	3	0	
TOTALS	529	645	981	21	383	1110	885	430	2594	10

2

ED , 05/71

TOTALS

105AB	105	105H	106AB	106	106H	107	108	
0	5	0	0	0	0	0	0	9
83	25	24	37	2	0	1	3	238
0	1	0	0	0	0	14	6	21
0	0	0	0	0	0	1	0	1
0	0	0	0	1	0	13	18	33
74	31	72	250	13	0	0	1	514
0	0	0	1	0	0	0	0	7
78	5	24	84	13	0	3	0	419
0	0	0	0	0	0	0	0	2
170	88	120	25	13	0	3	10	1045
0	5	0	0	0	0	0	0	5
3	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	1	1
0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	1
474	267	2354	659	432	1000	105	99	7954
3	3	0	0	4	0	3	5	144
885	430	2594	1056	478	1000	143	143	10398



TABLE 31E. C & D CANAL TRAWL SURVEY

NUMBERS OF FISH BY SPECIES PER MILE TRAWLED, 06/71

SPECIES	STATIONS										TOTALS	
	100	101	102	103	104	104H	105AB	105	105H	106AB	106	
ALEWIVES	2	7	0	0	1	0	0	0	0	0	0	
AMERICAN EEL	30	52	37	22	0	0	0	2	0	12		
BLUE CRABS	14	17	0	0	0	0	0	3	0	4		
BLUE HERRING	2	0	0	0	0	0	0	0	0	0		
BLUEFISH	0	0	0	0	0	0	0	0	0	1		
BULLHEADS	0	1	31	0	0	28	122	0	8	10		
CATFISH, WHITE	0	0	3	0	1	0	5	0	0	0		
CHNL CATFISH	3	1	26	40	1	0	158	0	0	0		
DARTER, JOHNNY	0	0	0	0	0	0	2	0	0	0		
HOGCHOKER	0	36	23	0	4	14	96	10	0	0		
MENHADEN	0	43	0	0	1	44	0	0	4	6		
SCALED CARP	0	1	5	0	0	0	2	0	0	0		
SHINER, SPOTTAIL	0	0	1	2	0	0	3	0	0	0		
SPOT	3	25	0	0	0	0	2	0	0	0		
PUMPKINSEED	0	0	0	2	0	0	0	0	0	0		
WHITE PERCH	69	978	243	743	20	1576	2081	8	332	69		
YELLOW PERCH	0	2	0	0	0	4	0	0	0	1		
STRIPED BASS	0	4	3	16	0	2	2	0	0	2		
TOTALS	123	1167	373	825	28	1668	2473	23	344	105		

2

L SURVEY

MILE TRAWLED , 06/71

TOTALS

	104H	105AB	105	105H	106AB	106	106H	107	108	
1	0	0	0	0	0	0	0	0	0	10
0	0	0	2	0	12	1	26	0	0	182
0	0	0	3	0	4	0	40	0	4	82
0	0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	1	0	0	0	0	1
0	28	122	0	8	10	1	92	0	0	293
1	0	5	0	0	0	0	0	1	0	10
1	0	158	0	0	0	2	4	2	0	237
0	0	2	0	0	0	0	0	0	0	2
4	14	96	10	0	0	0	400	7	3	593
1	44	0	0	4	6	13	12	15	9	147
0	0	2	0	0	0	0	16	0	0	24
0	0	3	0	0	0	0	0	0	0	6
0	0	2	0	0	0	0	0	0	0	30
0	0	0	0	0	0	0	0	0	0	2
20	1576	2081	8	332	69	14	262	13	14	6422
0	4	0	0	0	1	0	4	0	0	11
0	2	2	0	0	2	1	10	1	0	41
28	1668	2473	23	344	105	32	866	39	30	8095



TABLE 31P. C & D CANAL TRAWL SURVEY

SPECIES	NUMBERS OF FISH BY SPECIES PER MILE TRAWLED , 07/71									
	STATIONS									
	100	101	102	103	104	104H	105AB	TOTALS 105	105H	106AB
ALEWIVES	0	4	3	8	6	0	0	3	180	300
AMERICAN EEL	0	8	7	0	7	2	58	3	60	64
ANCHOVIES	0	0	0	0	0	0	0	1	0	5
BLUE CRABS	3	22	27	0	12	140	10	17	120	10
BLUE HERRING	1	1	0	0	1	2	0	1	0	5
BLUEFISH	0	0	0	0	0	0	0	0	0	0
BULLHEADS	0	2	6	1	0	8	160	0	6	332
CATFISH, WHITE	0	0	0	0	0	0	7	0	0	3
CHNL CATFISH	1	2	7	11	0	0	11	2	0	0
DARTER, JOHNNY	0	0	0	0	0	2	0	0	6	0
GRAY TROUT	0	2	0	0	1	2	4	70	6	257
HOGCHOKER	0	4	45	9	1	2	390	8	8	6
MENHADEN	7	47	12	10	20	0	0	1	204	0
PIPEFISH	0	0	0	0	0	0	0	0	0	0
RANGIA CLAMS	0	0	0	0	0	0	0	0	6	1
SCALED CARP	0	1	2	5	0	0	3	0	2	2
SHINER, SPOTTAIL	0	0	0	6	0	0	0	0	0	0
SPOT	0	1	10	0	0	20	0	0	198	29
WHITE PERCH	16	250	767	361	23	224	1162	126	1866	2187
YELLOW PERCH	0	0	0	0	1	6	0	0	6	0
STRIPED BASS	0	26	206	9	3	8	0	1	670	7
TOTALS	28	370	1092	420	75	416	1805	233	3338	3208

2

# WL SURVEY

MILE TRAWLED , 07/71

	104H	105AB	TOTALS 105	105H	106AB	106	106H	107	108	
6	0	0	3	180	300	3	0	4	1	512
7	2	58	3	60	64	29	0	0	0	238
0	0	0	1	0	5	0	0	9	9	24
12	140	10	17	120	10	29	68	25	8	491
1	2	0	1	0	5	1	0	1	0	13
0	0	0	0	0	0	0	0	0	1	1
0	8	160	0	6	332	23	0	0	0	538
0	0	7	0	0	3	0	0	0	0	10
0	0	11	2	0	0	10	2	1	0	47
0	2	0	0	6	0	0	0	0	0	8
1	2	4	70	6	257	156	0	685	352	1535
1	2	390	8	8	6	78	56	0	0	607
20	0	0	1	204	0	7	0	3	25	336
0	0	0	0	0	0	0	0	1	0	1
0	0	0	0	6	1	0	2	0	0	9
0	0	3	0	2	2	0	2	0	0	17
0	0	0	0	0	0	0	0	0	0	6
0	20	0	0	198	29	0	0	0	2	260
23	224	1162	126	1866	2187	100	12	65	32	7191
1	6	0	0	6	0	0	0	0	0	13
3	8	0	1	670	7	2	0	7	4	943
75	416	1805	233	3338	3208	438	142	801	434	12800



TABLE 31G. C & D CANAL TRAWL SURVEY

SPECIES	NUMBERS OF FISH BY SPECIES PER MILE TRAWLED, 08/71									
	STATIONS									
	100	101	102	103	104	104H	105AB	TOTALS 105	105H	106AB
ALEWIVES	15	6	25	74	23	32	2	6	8	767
AMERICAN EEL	0	0	0	0	0	0	30	5	0	19
ANCHOVIES	122	283	27	80	101	460	3	12	10	37
BLUE CRABS	3	7	0	0	24	0	28	0	14	228
BLUE HERRING	0	1	77	5	3	0	0	0	0	0
BULLHEADS	0	0	8	6	0	0	33	1	14	33
CHNL CATFISH	0	0	12	5	0	0	21	1	12	5
DARTER, JOHNNY	0	0	0	0	3	6	0	0	14	4
GIZZARD SHAD	0	3	22	4	8	22	159	1	10	15
GRAY TROUT	0	0	0	0	3	6	9	11	14	38
HOGCHOKER	2	3	37	1	12	8	531	7	18	18
MENHADEN	3	17	0	0	0	92	171	11	12	0
SCALED CARP	0	0	1	1	0	0	0	0	2	0
SEA HERRING	1	0	0	0	3	0	0	0	0	0
SHINER, SPOTTAIL	0	0	0	4	0	0	0	0	0	0
SPOT	10	11	18	5	18	28	259	1	58	236
PUMPKINSEED	0	0	0	5	0	0	0	0	0	0
WHITE PERCH	6	5	974	1207	399	342	1797	153	712	2011
YELLOW PERCH	0	0	0	0	0	0	0	0	0	4
STRIPED BASS	4	0	8	4	3	8	8	0	0	11
TOTALS	166	336	1209	1401	600	1004	3051	209	898	3426

2

## AWL SURVEY

R MILE TRAWLED , 08/71

	104H	105AB	TOTALS 105	105H	106AB	106	106H	107	108	
23	32	2	6	8	767	2	60	11	100	1131
0	0	30	5	0	19	1	4	0	0	59
101	460	3	12	10	37	14	418	34	192	1793
24	0	28	0	14	228	0	44	0	7	355
3	0	0	0	0	0	0	0	0	0	86
0	0	33	1	14	33	0	0	0	0	95
0	0	21	1	12	5	0	2	0	0	58
3	6	0	0	14	4	0	0	0	0	27
8	22	159	1	10	15	0	0	0	0	244
3	6	9	11	14	38	2	24	16	2	125
12	8	531	7	18	18	1	16	0	0	654
0	92	171	11	12	0	13	28	2	0	349
0	0	0	0	2	0	0	0	0	0	4
3	0	0	0	0	0	0	0	0	0	4
0	0	0	0	0	0	0	0	0	0	4
18	28	259	1	58	236	16	66	10	10	746
0	0	0	0	0	0	0	0	0	0	5
399	342	1797	153	712	2011	33	192	48	4	7883
0	0	0	0	0	4	0	0	0	0	4
3	8	8	0	0	11	0	4	2	0	52
600	1004	3051	209	898	3426	82	858	123	315	13678



TABLE 31B C & D CANAL TRAWL SURVEY

NUMBERS OF FISH BY SPECIES PER MILE TRAWLED , 09/71

SPECIES	STATIONS										TOTALS
	100	101	102	103	104	104H	105AB	105	105H	106AB	
ALEWIVES	19	39	32	95	8	14	4	2	14	137	
AMERICAN EEL	0	8	24	0	0	36	44	0	30	48	
ANCHOVIES	130	171	137	23	64	34	125	99	100	170	
ATL SHRIMP	0	0	0	0	0	0	0	0	4	0	
BLACK DRUM	0	0	0	0	0	0	0	1	0	0	
BLUE CRABS	0	11	0	0	0	0	50	6	66	42	
BLUE HERRING	1	0	7	204	4	0	7	0	0	0	
BULLHEADS	0	6	0	0	0	6	18	0	6	389	
CATFISH, WHITE	0	0	1	0	0	0	0	0	0	0	
CHNL CATFISH	0	3	5	0	0	18	9	0	22	7	
DARTER, JOHNNY	0	0	0	8	0	24	0	0	60	0	
GINSBG GOBY	0	0	0	0	0	0	0	0	0	0	
GIZZARD SHAD	1	0	5	9	1	0	118	0	2	4	
GRAY TROUT	6	0	3	0	18	34	0	15	24	16	
HOGCHOKER	13	71	93	9	0	12	17	0	24	9	
MENHADEN	0	0	6	0	1	0	0	4	2	0	
RANGIA CLAMS	0	0	0	0	0	6	0	0	2	0	
SAND PERCH	0	0	0	0	0	0	0	2	0	0	
SCALED CARP	0	0	0	0	0	2	0	0	0	0	
SPOT	12	106	43	9	1	504	18	0	88	116	
WHITE PERCH	148	90	312	1096	28	1996	640	5	276	396	
STRIPED BASS	3	6	3	0	0	0	10	0	0	0	
TOTALS	333	511	671	1453	125	2686	1060	134	720	1334	

2

# AWL SURVEY

R MILE TRAWLED , 09/71

TOTALS										
104H	105AB	105	105H	106AB	106	106H	107	108		
8	14	4	2	14	137	4	20	2	11	401
0	36	44	0	30	48	10	0	0	44	244
64	34	125	99	100	170	31	0	24	514	1622
0	0	0	0	4	0	1	0	4	0	9
0	0	0	1	0	0	0	0	0	0	1
0	0	50	6	66	42	7	12	4	12	210
4	0	7	0	0	0	0	0	1	8	232
0	6	18	0	6	389	0	26	0	8	459
0	0	0	0	0	0	0	0	0	0	1
0	18	9	0	22	7	13	52	3	4	136
0	24	0	0	60	0	0	0	0	0	92
0	0	0	0	0	0	0	0	1	0	1
1	0	118	0	2	4	0	20	0	0	160
18	34	0	15	24	16	29	24	57	9	235
0	12	17	0	24	9	43	122	24	5	442
1	0	0	4	2	0	3	0	0	39	55
0	6	0	0	2	0	0	0	0	0	8
0	0	0	2	0	0	0	0	1	0	3
0	2	0	0	0	0	0	4	0	0	6
1	504	18	0	88	116	8	380	9	9	1303
28	1996	640	5	276	396	60	700	53	366	6166
0	0	10	0	0	0	0	24	1	4	51
125	2686	1060	134	720	1334	209	1384	184	1033	11837



TABLE 3113 C & D CANAL TRAWL SURVEY

SPECIES	NUMBERS OF FISH BY SPECIES PER MILE TRAWLED, 10/71									
	STATIONS								TOTALS	
	100	101	102	103	104	104H	105AB	105	105H	106AB
ALEWIVES	1	10	29	12	36	8	0	42	8	285
AMERICAN EEL	0	0	0	0	0	0	26	0	0	33
ANCHOVIES	110	4500	186	210	177	2238	50	288	3760	970
ATL SHRIMP	0	0	1	0	0	8	0	0	2	0
BLACK DRUM	0	0	0	0	0	0	0	0	0	0
BLUE CRABS	0	0	0	4	0	8	50	0	4	0
BLUE HERRING	39	255	12	8	1	14	0	1	10	29
BULLHEADS	0	0	0	0	0	12	318	4	30	86
CATFISH, WHITE	0	0	0	0	0	0	0	0	2	0
CHNL CATFISH	2	0	3	5	0	0	254	4	8	9
DARTER, JOHNNY	0	0	0	4	0	18	0	0	2	0
GIZZARD SHAD	0	0	3	2	3	10	768	1	20	73
GRAY TROUT	0	5	3	0	2	8	0	3	12	19
HOGCHOKER	0	5	0	5	0	0	60	0	2	12
MENHADEN	0	9	26	2	9	18	9	5	44	3
RANGIA CLAMS	0	0	0	0	0	0	0	0	0	0
SAND PERCH	0	0	0	0	0	0	0	0	0	0
SCALED CARP	0	0	0	4	0	4	4	0	0	0
SILVERSIDES	0	0	0	0	0	0	0	0	4	0
SPOT	0	9	10	10	0	8	79	0	22	39
PUMPKINSEED	0	0	0	5	0	0	0	0	0	0
WHITE PERCH	4	201	41	117	6	3326	2639	22	82	775
YELLOW PERCH	0	0	0	4	0	0	0	0	2	0
CROAKER, AT.	0	0	0	0	0	0	0	0	0	0
STRIPED BASS	0	9	0	7	0	12	7	0	14	2
TOTALS	156	5003	314	399	234	5692	4264	370	4028	2335

SURVEY

1 MILE TRAWLED , 10/71

TOTALS

104H	105AB	105	105H	106AB	106	106H	107	108	
8	0	42	8	285	50	16	47	100	644
0	26	0	0	33	4	14	2	1	80
2238	50	288	3760	970	618	40	554	812	14 513
8	0	0	2	0	1	0	0	0	12
0	0	0	0	0	0	2	0	0	2
8	50	0	4	0	7	2	0	0	75
14	0	1	10	29	1	0	1	0	371
12	318	4	30	86	0	8	0	0	458
0	0	0	2	0	0	0	0	0	2
0	254	4	8	9	1	36	0	0	322
18	0	0	2	0	0	6	0	0	30
10	768	1	20	73	3	0	2	2	887
8	0	3	12	19	27	12	6	0	97
0	60	0	2	12	43	244	0	0	371
18	9	5	44	3	7	2	1	0	135
0	0	0	0	0	0	2	0	0	2
0	0	0	0	0	3	0	0	0	3
4	4	0	0	0	0	4	0	0	16
0	0	0	4	0	0	0	0	0	4
8	79	0	22	39	2	66	0	0	245
0	0	0	0	0	0	0	0	0	5
3326	2639	22	82	775	251	968	108	4	8544
0	0	0	2	0	0	0	0	0	6
0	0	0	0	0	0	0	9	0	9
12	7	0	14	2	0	2	0	0	53
5692	4264	370	4028	2335	1018	1424	730	919	26886



TABLE 313. C & D CANAL TRAWL SURVEY

SPECIES	NUMBERS OF FISH BY SPECIES PER MILE TRAWLED , 12/71									
	STATIONS									
	100	101	102	103	104	104H	105AB	TOTALS 105	105H	106AB 106
ALEWIVES	0	0	0	0	0	0	0	2	0	0
AMERICAN EEL	4	0	1	0	2	0	0	0	0	2
ANCHOVIES	0	0	0	0	0	2	0	3	0	0
ATL SHRIMP	0	0	0	0	1	0	0	0	0	1
BLUE HERRING	0	2	0	0	0	2	0	9	2	0
BULLHEADS	4	0	8	0	0	2	18	0	2	34
CATFISH, WHITE	0	0	0	0	1	0	7	0	0	1
CHNL CATFISH	14	1	4	1	1	2	63	3	30	5
CROAKER	5	2	3	0	1	6	0	0	4	0
DARTER, JOHNNY	0	0	30	5	2	52	1	0	20	10
GIZZARD SHAD	45	2	0	0	12	0	0	0	0	9
HOGCHOKER	6	15	8	0	0	20	1	4	12	51
MENHADEN	4	0	0	0	0	0	0	0	0	0
RANGIA CLAMS	0	0	0	0	0	0	0	0	0	1
SCALED CARP	0	0	0	1	0	0	3	0	0	1
SHINER, SPOTTAIL	0	0	6	19	1	0	99	0	14	40
PUMPKINSEED	0	1	21	0	0	0	2	0	0	0
WHITE PERCH	278	134	153	2	187	304	13	55	152	178
YELLOW PERCH	0	0	71	3	2	4	7	0	0	7
GOLDFISH	0	0	0	2	0	0	0	0	0	1
FOURSPINE STICKLE	0	0	0	0	1	0	0	0	0	0
STRIPED BASS	0	0	0	0	3	0	0	0	2	3
TOTALS	360	157	305	33	214	394	214	76	238	344

2

# RAWL SURVEY

ER MILE TRAWLED , 12/71

	104H	105AB	TOTALS 105	105H	106AB	106	106H	107	108	
0	0	0	2	0	0	0	0	0	0	2
2	0	0	0	0	2	0	0	0	0	9
0	2	0	3	0	0	1	2	0	1	9
1	0	0	0	0	1	1	0	1	2	6
0	2	0	9	2	0	0	0	2	4	21
0	2	18	0	2	34	0	0	0	0	68
1	0	7	0	0	1	0	2	0	0	11
1	2	63	3	30	5	2	6	0	0	132
1	6	0	0	4	0	1	2	0	4	28
2	52	1	0	20	10	0	0	0	0	120
12	0	0	0	0	9	0	0	0	0	68
0	20	1	4	12	51	5	0	0	0	122
0	0	0	0	0	0	0	0	0	0	4
0	0	0	0	0	1	0	0	0	0	1
0	0	3	0	0	1	0	0	0	0	5
1	0	99	0	14	40	0	0	1	1	181
0	0	2	0	0	0	0	0	0	0	24
187	304	13	55	152	178	38	1232	25	45	2796
2	4	7	0	0	7	0	6	0	0	100
0	0	0	0	0	1	0	0	0	0	3
1	0	0	0	0	0	0	0	0	0	1
3	0	0	0	2	3	0	6	0	1	15
214	394	214	76	238	344	48	1256	29	58	3726



TABLE 31% C & D CANAL TRAWL SURVEY

SPECIES	NUMBERS OF FISH BY SPECIES PER MILE TRAWLED , 03/72									
	STATIONS									
	100	101	102	103	104	104H	105AB	TOTALS 105	105H	106AB
ALEWIVES	0	1	0	0	0	0	1	0	0	0
AMERICAN EEL	1	4	0	0	0	8	5	0	0	16
BLUE HERRING	0	0	0	0	0	0	12	0	0	0
BULLHEADS	0	2	16	10	0	6	7	0	0	7
CATFISH, WHITE	0	0	0	1	0	0	0	0	0	0
CHNL CATFISH	0	0	1	4	11	6	0	2	2	11
DARTER, JOHNNY	0	6	12	65	3	50	0	0	0	0
HOGCHOKER	1	5	1	0	0	2	3	12	12	0
RANGIA CLAMS	0	2	1	0	0	0	0	0	0	4
SHINEK, SPOTTAIL	0	0	0	5	2	0	32	0	26	7
PUMPKINSEED	0	0	0	0	0	0	1	0	0	0
WHITE PERCH	1	179	50	64	25	176	630	85	142	298
YELLOW PERCH	1	0	0	66	1	22	16	0	28	4
STRIPED BASS	1	2	0	0	0	0	0	0	0	4
TOTALS	5	201	81	215	42	270	707	99	210	351

2

SURVEY

FILE TRAWLED , 03/72

TOTALS

104H	105AB	105	105H	106AB	106	106H	107	108	
0	1	0	0	0	1	0	0	1	4
8	5	0	0	16	3	0	0	0	37
0	12	0	0	0	0	0	0	1	13
6	7	0	0	7	0	0	0	0	48
0	0	0	0	0	0	0	0	0	1
6	0	2	2	11	0	24	1	0	62
50	0	0	0	0	0	0	0	0	136
2	3	12	12	0	2	12	0	0	50
0	0	0	0	4	0	0	0	0	7
0	32	0	26	7	3	48	0	0	123
0	1	0	0	0	0	0	0	0	1
176	630	85	142	298	24	140	7	12	1833
22	16	0	28	4	2	24	0	0	164
0	0	0	0	4	0	0	1	0	8
270	707	99	210	351	35	248	9	14	2487



TABLE 31L C & D CANAL TRAWL SURVEY

SPECIES	NUMBERS OF FISH BY SPECIES PER MILE TRAWLED , 04/72									
	STATIONS								TOTALS	
	100	101	102	103	104	104H	105AB	105	105H	106AB
ALEWIVES	1	4	0	0	0	0	0	5	12	0
AMERICAN EEL	0	0	6	0	8	64	270	6	0	20
ANCHOVIES	0	0	0	0	0	0	0	0	0	0
BLUE HERRING	0	0	0	0	0	0	0	0	0	10
BULLHEADS	1	4	48	0	11	0	27	28	14	42
CATFISH, WHITE	0	0	0	0	0	0	0	8	0	0
CHNL CATFISH	1	0	12	6	5	16	4	6	12	10
DARTER, JOHNNY	0	0	11	0	0	0	8	0	0	0
HOGCHOKER	3	4	3	1	9	32	13	18	16	11
RANGIA CLAMS	0	0	0	0	0	8	20	6	0	0
SCALED CARP	0	0	0	0	0	0	1	0	0	0
SHINER, SPOTTAIL	0	0	0	1	0	0	0	0	0	0
WHITE PERCH	74	82	148	82	84	136	166	72	238	677
YELLOW PERCH	0	0	0	1	0	0	11	0	0	0
STRIPED BASS	1	6	0	0	7	10	4	24	12	20
TOTALS	81	100	228	91	124	266	524	173	304	790

2

# WL SURVEY

R MILE TRAWLED , 04/72

TOTALS											
104H	105AB	105	105H	106AB	106	106H	107	108			
0	0	0	5	12	0	8	0	0	2	32	
8	64	270	6	0	20	0	0	0	0	374	
0	0	0	0	0	0	0	0	0	1	1	
0	0	0	0	0	10	0	0	0	2	12	
11	0	27	28	14	42	1	14	0	0	190	
0	0	0	8	0	0	0	0	0	0	8	
5	16	4	6	12	10	0	14	2	1	89	
0	0	8	0	0	0	0	0	0	0	19	
9	32	13	18	16	11	0	24	0	2	136	
0	8	20	6	0	0	0	0	0	0	34	
0	0	1	0	0	0	0	0	0	0	1	
0	0	0	0	0	0	0	0	0	0	1	
84	136	166	72	238	677	25	194	24	32	2034	
0	0	11	0	0	0	0	0	0	0	12	
7	10	4	24	12	20	4	16	1	0	105	
124	266	524	173	304	790	38	262	27	40	3048	



TABLE 31M. C & D CANAL TRAWL SURVEY

SPECIES	NUMBERS OF FISH BY SPECIES PER MILE TRAWLED , 05/72									
	STATIONS									
	100	101	102	103	104	104H	105AB	TOTALS 105	105H	106
ALEWIVES	0	0	0	0	0	0	10	0	0	0
AMERICAN EEL	2	47	10	20	35	152	0	20	0	0
ANCHOVIES	0	0	5	2	0	48	0	0	10	0
BLUE HERRING	5	0	0	9	5	0	0	0	0	0
BULLHEADS	2	14	18	32	8	24	45	44	0	0
CATFISH, WHITE	0	0	0	0	0	8	0	0	0	0
CHNL CATFISH	14	37	10	3	8	8	47	14	14	0
CRAPPIE, WHITE	0	0	5	0	0	0	0	0	0	0
CROAKER	0	0	0	0	0	8	0	0	0	0
HOGCHUKER	53	22	50	4	181	128	25	35	10	0
MENHADEN	0	0	0	0	0	8	0	0	0	0
SCALED CARP	0	0	0	1	0	0	0	0	0	0
SHINER, SPOTTAIL	5	0	0	4	0	0	0	0	0	0
PUMPKINSEED	0	0	10	1	0	0	0	0	0	0
WHITE PERCH	145	123	208	302	114	642	183	28	106	0
YELLOW PERCH	0	0	0	4	0	0	0	0	0	0
LARVAL CLUPEIDS	0	0	0	0	0	0	0	0	0	0
STRIPED BASS	2	9	0	1	5	0	0	0	10	0
RANGIA SHELLS	0	0	5	0	0	8	0	5	0	0
TOTALS	228	252	321	383	356	1034	310	146	150	

2

L SURVEY

MILE TRAWLED , 05/72

	104H	105AB	TOTALS 105	105H	106AB	106	106H	107	108	
0	0	10	0	0	0	0	0	0	0	10
5	152	0	20	0	105	8	0	0	28	427
0	48	0	0	10	5	0	0	6	4	80
5	0	0	0	0	0	0	0	7	0	26
8	24	45	44	0	24	1	0	0	15	227
0	8	0	0	0	0	0	0	0	0	8
8	8	47	14	14	4	17	0	13	4	193
0	0	0	0	0	0	0	0	0	0	5
0	8	0	0	0	0	0	0	0	4	12
1	128	25	35	10	10	183	180	8	9	898
0	8	0	0	0	0	0	0	0	0	8
0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	5	0	14
0	0	0	0	0	0	0	0	0	0	11
4	642	103	28	106	165	114	130	22	104	2386
0	0	0	0	0	4	0	0	0	0	8
0	0	0	0	0	0	0	0	0	4	4
5	0	0	0	10	0	0	0	0	0	27
0	8	0	5	0	0	0	10	0	0	28
6	1034	310	146	150	317	323	320	61	172	4373



TABLE 31N. C &amp; D CANAL TRAWL SURVEY

NUMBERS OF FISH BY SPECIES PER MILE TRAWLED, 06/72

SPECIES	STATIONS										TOTALS	
	100	101	102	103	104	104H	105AB	105	105H	106AB		
ALEWIVES	0	0	0	0	2	0	0	0	0	0	0	0
AMERICAN EEL	4	3	3	0	2	16	8	1	0	14		
ANCHOVIES	0	2	0	1	0	16	13	0	90	17		
BLUE CRABS	0	1	0	0	0	0	0	0	0	4		
BLUE HERRING	0	0	1	0	0	0	0	0	0	0		
BULLHEADS	0	1	5	12	0	18	26	0	8	48		
CHNL CATFISH	2	0	8	1	0	10	13	0	2	4		
DARTER, JOHNNY	0	0	0	0	0	0	0	0	2	0		
HOGCHOKER	0	1	0	8	0	14	0	2	0	0		
MENHADEN	2	168	3	0	144	70	30	8	44	16		
MUTTONFISH	0	0	0	0	0	0	5	0	0	0		
SCALED CARP	0	0	0	1	0	2	0	0	0	0		
SHINER SPOTTAIL	0	0	1	24	0	14	5	0	10	1		
SILVERSIDES	0	0	0	2	0	0	0	0	0	0		
SPOT	0	0	0	0	0	10	26	1	2	8		
PUMPKINSEED	0	0	0	0	0	0	5	0	0	0		
WHITE PERCH	17	47	115	1642	48	744	1872	175	350	512		
YELLOW PERCH	0	0	0	1	0	8	0	0	6	0		
GOLDFISH	0	0	0	0	0	8	0	0	0	0		
STRIPED BASS	0	4	0	1	0	0	0	1	0	5		
RANGIA SHELLS	0	0	1	0	0	0	0	0	0	0		
TOTALS	25	227	137	1695	194	930	2003	188	514	629		

2

SURVEY

FILE TRAWLED , 06/72

TOTALS

104H	105AB	105	105H	106AB	106	106H	107	108	
0	0	0	0	0	0	0	1	0	3
16	8	1	0	14	0	2	1	14	68
16	13	0	90	17	0	4	0	0	143
0	0	0	0	4	0	0	0	0	5
0	0	0	0	0	0	0	0	1	2
18	26	0	8	48	0	18	0	1	137
10	13	0	2	4	8	14	0	10	72
0	0	0	2	0	0	0	0	0	2
14	0	2	0	0	9	50	3	4	91
70	30	8	44	16	0	8	3	0	496
0	5	0	0	0	0	0	0	0	5
2	0	0	0	0	0	0	0	0	3
14	5	0	10	1	0	0	0	0	55
0	0	0	0	0	0	0	0	0	2
10	26	1	2	8	0	4	0	8	59
0	5	0	0	0	0	0	0	0	5
744	1872	175	350	512	23	254	8	20	5827
8	0	0	6	0	0	2	0	0	17
8	0	0	0	0	0	0	0	0	8
0	0	1	0	5	0	0	0	2	13
0	0	0	0	0	0	0	0	0	1
930	2003	188	514	629	40	356	16	60	7014



TABLE 310. C & D CANAL TRAWL SURVEY

NUMBERS OF FISH BY SPECIES PER MILE TRAWLED , 07/72

SPECIES	STATIONS										TOTALS	
	100	101	102	103	104	104H	105AB	105	105H	106AB	107	108
AMERICAN EEL	1	0	10	41	1	16	28	1	4	9		
ANCHOVIES	1	0	0	0	0	0	0	0	0	0		
BLUE CRABS	0	0	0	0	0	0	0	0	0	1		
BULLHEADS	0	0	6	30	0	24	168	4	40	38		
CATFISH, WHITE	0	0	0	0	0	0	0	0	0	0		
CHNL CATFISH	0	1	0	9	1	6	15	3	10	22		
CROAKER	0	0	0	0	0	0	3	0	0	0		
DARTER, JOHNNY	0	0	0	0	0	0	0	0	2	0		
HOGCHOKER	0	0	3	1	4	40	48	10	50	2		
MENHADEN	2	3	0	3	0	0	12	1	0	2		
SCALED CARP	0	0	1	7	0	0	0	0	0	2		
SHINER, SPOTTAIL	0	1	0	0	0	0	0	0	0	0		
WHITE PERCH	27	46	179	90	18	416	512	104	446	126		
YELLOW PERCH	0	1	4	31	0	6	0	1	2	0		
STRIPED BASS	0	1	0	0	0	0	0	0	0	0		
CRAYFISH, FRESHWTR	0	0	0	1	0	0	0	0	0	0		
RANGIA SHELLS	0	0	0	0	0	2	0	0	2	0		
TOTALS	31	53	203	213	24	510	786	124	556	202		

2

ED , 07/72  
TOTALS

05AB	105	105H	106AB	106	106H	107	108	
28	1	4	9	0	6	1	0	118
0	0	0	0	0	0	0	0	1
0	0	0	1	0	0	0	0	1
168	4	40	38	0	48	0	0	358
0	0	0	0	1	0	0	0	1
15	3	10	22	1	2	0	0	70
3	0	0	0	0	0	0	0	3
0	0	2	0	0	0	0	0	2
48	10	50	2	0	112	0	0	270
12	1	0	2	1	0	2	0	26
0	0	0	2	0	0	0	0	10
0	0	0	0	0	0	0	0	1
512	104	446	126	10	218	6	10	2208
0	1	2	0	0	0	0	0	45
0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	1
0	0	2	0	0	0	0	0	4
786	124	556	202	13	386	9	10	3120



TABLE 31P. C &amp; D CANAL TRAWL SURVEY

SPECIES	NUMBERS OF FISH BY SPECIES PER MILE TRAWLED, 08/72									
	STATIONS								TOTALS	
	100	101	102	103	104	104H	105AB	105	105H	106AB
ALEWIVES	0	1	0	10	0	0	0	0	0	13
AMERICAN EEL	14	18	32	12	2	6	10	14	0	320
ANCHOVIES	0	0	0	0	1	6	0	7	18	40
ATL SHRIMP	0	0	0	0	0	0	0	0	0	0
BLUE CRABS	0	0	0	0	0	12	0	7	0	0
BULLHEADS	0	38	41	6	1	12	57	17	0	138
CATFISH, WHITE	0	0	1	14	1	0	0	0	0	0
CHNL CATFISH	11	27	85	30	14	14	39	8	10	29
CROAKER	0	0	0	0	0	0	10	2	0	0
DARTER, JOHNNY	1	3	0	0	0	0	0	0	0	0
GIZZARD SHAD	1	0	0	16	0	0	0	0	0	0
GRAY TROUT	0	0	0	0	0	0	0	675	0	128
HOGCHOKER	9	60	7	16	0	72	170	3	40	20
MENHADEN	2	0	3	0	0	0	0	1	12	21
MIRROR CARP	0	0	0	10	0	0	0	0	0	0
PIPEFISH	0	0	0	0	0	0	0	0	0	10
RANGIA CLAMS	0	0	1	0	0	6	0	0	0	10
SAND PERCH	0	0	0	0	0	0	0	0	0	0
SCALED CARP	1	0	2	12	3	0	0	0	10	10
SHINER, SPOTTAIL	0	0	0	16	0	0	0	0	10	0
SPOT	88	7	0	0	0	0	10	3	10	29
PUMPKINSEED	0	1	0	0	0	0	0	0	0	0
WHITE PERCH	46	145	192	1490	37	618	1555	80	540	1730
YELLOW PERCH	0	0	2	14	0	0	11	0	10	0
STRIPED BASS	0	1	0	0	0	0	23	0	0	20
TOTALS	173	301	366	1646	59	746	1885	817	660	2518

2

KEY

RAWLED , 08/72

TOTALS										
	105AB	105	105H	106AB	106	106H	107	108		
0	0	0	0	13	0	0	0	0	24	
6	10	14	0	320	1	2	2	10	443	
6	0	7	18	40	30	2	30	2	136	
0	0	0	0	0	0	0	1	1	2	
12	0	7	0	0	0	18	0	0	37	
12	57	17	0	138	1	2	0	2	315	
0	0	0	0	0	0	0	1	0	17	
14	39	8	10	29	2	0	28	11	308	
0	10	2	0	0	1	0	1	1	15	
0	0	0	0	0	0	0	0	0	4	
0	0	0	0	0	0	0	0	0	17	
0	0	675	0	128	2	2	620	244	1671	
72	170	3	40	20	1	0	9	10	417	
0	0	1	12	21	1	0	0	0	40	
0	0	0	0	0	0	0	0	0	10	
0	0	0	0	10	0	0	0	0	10	
6	0	0	0	10	1	0	0	0	18	
0	0	0	0	0	0	0	0	1	1	
0	0	0	10	10	1	2	0	0	41	
0	0	0	10	0	0	0	0	0	26	
0	10	3	10	29	0	2	0	0	149	
0	0	0	0	0	0	0	0	0	1	
18	1555	80	540	1730	5	2	16	51	6507	
0	11	0	10	0	0	0	0	0	37	
0	23	0	0	20	1	0	0	0	45	
46	1885	817	660	2518	47	32	708	333	10291	



TABLE 31Q. C & D CANAL TRAWL SURVEY

SPECIES	NUMBERS OF FISH BY SPECIES PER MILE TRAWLED , 10/72										
	STATIONS										TOTALS
	100	101	102	103	104	104H	105AB	105	105H	106AB	106
ALEWIVES	6	17	10	0	12	134	14	32	38	42	4
AMERICAN EEL	1	0	0	0	0	0	0	0	0	0	0
ANCHOVIES	105	360	67	8	52	400	4	272	200	134	59
ATL SHRIMP	2	1	1	2	0	0	0	0	0	4	0
BLUE CRABS	1	6	0	2	0	0	0	0	0	5	2
BLUE HERRING	0	18	3	2	0	0	0	0	0	0	0
BLUEFISH	0	0	0	0	1	0	0	0	0	0	0
BULLHEADS	0	0	0	9	0	2	61	2	0	6	0
BUTTERFISH	0	0	1	0	0	0	0	0	0	0	0
CHNL CATFISH	1	3	1	46	5	0	32	3	6	11	1
DARTER, JOHNNY	0	0	0	0	0	0	0	0	0	9	0
GIZZARD SHAD	0	0	1	0	0	0	0	0	0	4	0
GRAY TROUT	9	6	2	0	6	0	10	19	6	18	6
HOGCHOKER	0	7	1	4	0	2	15	1	2	9	0
MENHAUEN	6	19	2	95	12	34	6	5	8	25	20
PIPEFISH	0	0	0	0	0	0	0	0	0	0	0
SCALED CARP	0	1	0	7	0	0	4	0	0	0	0
SILVERSIDES	0	0	2	0	0	0	0	0	0	0	0
SPOT	4	36	3	74	1	30	33	5	14	37	3
WHITE PERCH	212	82	20	749	1	128	1204	19	22	760	25
STRIPED BASS	2	0	0	2	0	2	9	2	0	6	0
TOTALS	349	556	114	1000	90	732	1392	360	296	1070	120

# IL SURVEY

MILE TRAWLED , 10/72

TOTALS

	104H	105AB	105	105H	106AB	106	106H	107	108	
2	134	14	32	38	42	4	20	2	2	333
0	0	0	0	0	0	0	0	0	0	1
2	400	4	272	200	134	59	520	220	140	2541
0	0	0	0	0	4	0	8	1	1	20
0	0	0	0	0	5	2	0	2	3	21
0	0	0	0	0	0	0	0	0	0	23
1	0	0	0	0	0	0	0	0	0	1
0	2	61	2	0	6	0	0	1	0	81
0	0	0	0	0	0	0	0	0	0	1
5	0	32	3	6	11	1	8	9	0	126
0	0	0	0	0	9	0	0	0	0	9
0	0	0	0	0	4	0	0	0	0	5
6	0	10	19	6	18	6	8	18	5	113
0	2	15	1	2	9	0	30	8	1	80
2	34	6	5	8	25	20	0	4	8	244
0	0	0	0	0	0	0	8	0	0	8
0	0	4	0	0	0	0	6	0	0	18
0	0	0	0	0	0	0	8	0	0	10
1	30	33	5	14	37	3	304	3	0	547
1	128	1204	19	22	760	25	368	15	8	3613
0	2	9	2	0	6	0	10	3	0	36
0	732	1392	360	296	1070	120	1298	286	168	7831



TABLE 31R. C & D CANAL TRAWL SURVEY

SPECIES	NUMBERS OF FISH BY SPECIES PER MILE TRAWLED , 11/72										
	STATIONS										
	100	101	102	103	104	104H	105AB	TOTALS 105	105H	106AB	106
ALEWIVES	22	38	18	0	18	0	2	0	20	95	
AMERICAN EEL	0	0	20	0	0	0	0	0	0	0	
ANCHOVIES	6	61	4	0	14	214	0	3	400	23	
ATL SHRIMP	1	0	2	0	10	0	0	1	0	1	
BLUE CRABS	0	0	0	0	5	0	2	0	0	0	
BLUE HERRING	0	0	0	0	0	2	2	0	12	1	
BULLHEADS	0	5	7	0	11	0	39	1	0	9	
CATFISH, WHITE	1	0	9	33	0	0	0	3	0	0	
CHNL CATFISH	17	0	42	45	20	0	4	105	24	9	
CRAPPIE, WHITE	0	0	0	0	0	0	2	0	0	0	
CROAKER	0	0	0	0	5	0	0	2	0	0	
DARTER, JOHNNY	0	0	0	2	0	0	0	2	8	0	
GIZZARD SHAD	0	7	28	2	5	8	2	0	0	1.	
GRAY TROUT	1	0	5	0	21	0	0	4	40	5	
HOGCHOKER	0	0	3	4	6	0	0	16	16	6	
MENHAUEN	5	30	0	0	6	0	288	7	0	1	
MUD CRAB	0	0	0	0	0	0	0	0	0	0	
SAND PERCH	0	0	0	0	5	0	0	2	0	0	
SCALED CARP	0	4	2	5	1	0	6	0	0	0	
SPOT	1	135	56	0	150	0	10	25	12	13	
WHITE PERCH	16	528	631	564	644	90	230	103	1504	1027	
YELLOW PERCH	0	0	0	0	0	0	0	0	8	0	
STRIPED BASS	0	3	5	5	30	0	0	5	10	7	
CRAYFISH, FRESHWTR	0	0	0	2	0	0	0	0	0	0	
RANGIA SHELLS	0	0	0	0	0	100	0	0	0	5	
TOTALS	70	811	832	662	951	414	587	279	2054	1203	

2

VEY

TRAWLED , 11/72

TOTALS										
H	105AB	105	105H	106AB	106	106H	107	108		
0	2	0	20	95	12	44	2	15	286	
0	0	0	0	0	0	0	1	1	22	
214	0	3	400	23	17	32	34	180	988	
0	0	1	0	1	0	0	2	2	19	
0	2	0	0	0	0	0	0	0	7	
2	2	0	12	1	0	0	0	1	18	
0	39	1	0	9	0	8	0	0	80	
0	0	3	0	0	0	0	0	0	46	
0	4	105	24	9	7	0	47	24	344	
0	2	0	0	0	0	0	0	0	2	
0	0	2	0	0	0	0	0	0	7	
0	0	2	8	0	0	0	0	0	12	
8	2	0	0	1.	0	0	0	0	53	
0	0	4	40	5	4	0	1	5	86	
0	0	16	16	6	3	2	0	10	66	
0	288	7	0	1	1	0	1	1	340	
0	0	0	0	0	0	0	0	1	1	
0	0	2	0	0	2	0	0	0	9	
0	6	0	0	0	0	0	0	0	18	
0	10	25	12	13	1	8	2	4	417	
90	230	103	1504	1027	42	204	78	119	5780	
0	0	0	8	0	0	0	0	0	8	
0	0	5	10	7	0	6	0	1	72	
0	0	0	0	0	0	0	0	0	2	
100	0	0	0	5	1	0	0	0	106	
414	587	279	2054	1203	90	304	168	364	8789	



TABLE 318. C & D CANAL TRAWL SURVEY

SPECIES	NUMBERS OF FISH BY SPECIES PER MILE TRAWLED, 12/72									
	STATIONS								TOTALS	
	100	101	102	103	104	104H	105AB	105	105H	106AB
BULLHEADS	0	4	2	1	0	0	80	0	0	3
CATFISH	0	4	1	6	1	0	8	0	0	0
CHNL CATFISH	0	5	1	26	12	2	71	3	4	1
DARTER, JOHNNY	0	0	0	1	0	0	8	0	0	5
GIZZARD SHAD	0	0	0	4	0	0	9	0	0	1
SCALED CARP	0	0	0	2	0	0	0	0	0	0
SHINER, SPOTTAIL	1	0	1	19	0	2	29	2	2	9
PUMPKINSEED	0	0	0	0	0	0	0	0	2	0
WHITE PERCH	7	820	7	2	5	68	36	21	152	22
YELLOW PERCH	0	0	25	63	8	6	18	0	2	2
LARGEMOUTH BASS	0	0	0	1	0	0	0	0	0	0
GOLDEN SHINER	0	0	0	0	0	0	1	0	0	0
STRIPED BASS	0	0	0	0	0	0	0	1	0	0
TOTALS	8	833	37	125	26	78	260	27	162	43

2

WL SURVEY

MILE TRAWLED , 12/72										
TOTALS										
	104H	105AB	105	105H	106AB	106	106H	107	108	
0	0	80	0	0	3	0	4	0	0	94
1	0	8	0	0	0	0	0	0	0	20
12	2	71	3	4	1	4	30	0	0	159
0	0	8	0	0	5	0	4	0	0	18
0	0	9	0	0	1	0	0	0	0	14
0	0	0	0	0	0	0	0	0	0	2
0	2	29	2	2	9	1	30	1	1	98
0	0	0	0	2	0	0	0	0	0	2
5	68	36	21	152	22	18	64	12	11	1245
8	6	18	0	2	2	0	2	0	0	126
0	0	0	0	0	0	0	0	0	0	1
0	0	1	0	0	0	0	0	0	0	1
0	0	0	1	0	0	0	0	0	0	1
26	78	260	27	162	43	23	134	13	12	1781



TABLE 31T. C & D CANAL TRAWL SURVEY

NUMBERS OF FISH BY SPECIES PER MILE TRAWLED , 01/73

SPECIES	STATIONS										TOTALS	
	100	101	102	103	104	104H	105AB	105	105H	106AB	106	
AMERICAN EEL	0	0	0	0	0	0	0	0	0	0	1	
BLUE CRABS	0	0	0	0	0	0	0	1	0	11		
BULLHEADS	0	0	2	0	0	0	0	0	0	0	0	
CATFISH, WHITE	1	0	0	0	3	0	0	0	0	1		
CHNL CATFISH	5	1	6	0	48	0	0	6	0	28		
DARTER, JOHNNY	0	0	0	0	0	0	0	0	0	55		
GIZZARD SHAD	1	53	0	0	0	0	0	0	0	0		
HOGCHOKER	0	1	0	0	0	0	0	0	0	2		
LGMTH BASS	0	0	1	0	0	0	0	0	0	0		
RANGIA CLAMS	0	0	0	0	1	0	0	0	0	19		
SHINER SPOTTAIL	1	0	3	0	0	0	0	0	0	26		
TOADFISH	0	1	0	0	0	0	0	0	0	0		
WHITE PERCH	41	774	0	0	5	0	0	31	0	20		
YELLOW PERCH	1	2	0	0	0	0	0	3	0	22		
STRIPED BASS	0	13	0	0	0	0	0	1	0	0		
TOTALS	50	845	12	0	57	0	0	42	0	185		

2

WL SURVEY

MILE TRAWLED , 01/73

TOTALS										
	104H	105AB	105	105H	106AB	106	106H	107	108	
0	0	0	0	0	1	0	0	0	0	1
0	0	0	1	0	11	0	0	0	0	12
0	0	0	0	0	0	0	0	0	0	2
3	0	0	0	0	1	0	0	0	0	5
48	0	0	6	0	28	0	0	0	5	99
0	0	0	0	0	55	0	0	0	0	55
0	0	0	0	0	0	0	0	0	0	54
0	0	0	0	0	2	0	0	0	0	3
0	0	0	0	0	0	0	0	0	0	1
1	0	0	0	0	19	0	0	0	0	20
0	0	0	0	0	26	0	0	0	2	32
0	0	0	0	0	0	0	0	0	0	1
5	0	0	31	0	20	0	0	0	1	872
0	0	0	3	0	22	0	0	0	0	28
0	0	0	1	0	0	0	0	0	0	14
57	0	0	42	0	185	0	0	0	8	1199



TABLE 31U . C & D CANAL TRAWL SURVEY

NUMBERS OF FISH BY SPECIES PER MILE TRAWLED , 02/73

SPECIES	STATIONS										TOTALS
	100	101	102	103	104	104H	105AB	105	105H	106	
BLENNY	0	0	0	0	0	0	0	0	0	0	
BULLHEADS	0	0	0	0	3	0	0	27	1	0	
CATFISH, WHITE	0	0	0	0	0	3	0	13	3	2	
CHNL CATFISH	0	2	0	27	8	18	64	37	10		
DARTER, JOHNNY	0	0	0	0	0	14	49	0	12		
GIZZARD SHAD	0	0	0	1	0	2	5	0	0		
HOGCHOKER	0	0	0	0	1	0	0	0	0		
SHINER, SPOTTAIL	0	1	0	7	1	56	72	1	8		
WHITE PERCH	0	2	0	3	11	10	138	25	14		
YELLOW PERCH	0	2	0	20	0	28	16	2	0		
TOTALS	0	7	0	61	24	128	384	69	46	2	

2

TRAWL SURVEY

PER MILE TRAWLED , 02/73

TOTALS											
04	104H	105AB	105	105H	106AB	106	106H	107	108		
0	0	0	0	0	1	0	0	0	0	0	1
0	0	27	1	0	5	1	0	0	0	0	37
3	0	13	3	2	0	0	0	0	0	0	21
8	18	64	37	10	8	1	44	0	0	0	219
0	14	49	0	12	52	0	62	0	0	0	189
0	2	5	0	0	1	0	0	0	1	0	10
1	0	0	0	0	0	0	0	0	0	0	1
1	56	72	1	8	138	1	108	0	0	0	393
11	10	138	25	14	7	6	20	8	4	0	248
0	28	16	2	0	24	0	16	1	0	0	109
24	128	384	69	46	236	9	250	9	5		1228



TABLE 31V. C &amp; D CANAL TRAWL SURVEY

NUMBERS OF FISH BY SPECIES PER MILE TRAWLED, 03/73

SPECIES	STATIONS										TOTALS	
	100	101	102	103	104	104H	105AB	105	105H	106AB		
AMERICAN EEL	4	40	48	0	6	16	12	2	0	1		
BULLHEADS	7	15	106	17	20	10	264	5	0	21		
CATFISH, WHITE	0	5	4	0	2	0	8	2	0	0		
CHNL CATFISH	7	10	11	18	26	16	25	3	0	5		
DARTER, JOHNNY	0	8	4	0	0	6	16	0	0	44		
GIZZARD SHAD	1	0	0	0	0	0	4	0	0	1		
HICKORY SHAD	0	0	0	0	0	0	0	1	0	0		
HOGCHOKER	8	30	0	0	3	8	4	115	0	1		
MUD CRAB	0	0	0	0	0	0	0	1	0	0		
SCALED CARP	0	1	0	1	0	2	4	0	0	0		
SHINER, SPOTTAIL	0	4	0	0	0	14	0	2	0	3		
PUMPKINSEED	0	0	0	0	0	0	0	1	0	0		
WHITE PERCH	320	576	235	7	237	276	284	416	0	121		
YELLOW PERCH	0	0	12	0	2	0	9	0	0	0		
STRIPED BASS	0	1	0	0	0	0	0	0	0	0		
TOTALS	347	690	420	43	296	348	630	548	0	197		

2

# TRAWL SURVEY

PER MILE TRAWLED , 03/73

			TOTALS								
04	104H	105AB	105	105H	106AB	106	106H	107	108		
6	16	12	2	0	1	12	96	0	0	237	
20	10	264	5	0	21	1	16	1	0	483	
2	0	8	2	0	0	0	0	0	0	21	
26	16	25	3	0	5	5	48	2	0	176	
0	6	16	0	0	44	0	56	0	0	134	
0	0	4	0	0	1	0	0	0	0	6	
0	0	0	1	0	0	0	0	1	0	2	
3	8	4	115	0	1	6	136	0	0	311	
0	0	0	1	0	0	0	0	0	0	1	
0	2	4	0	0	0	0	0	0	0	8	
0	14	0	2	0	3	9	152	1	0	185	
0	0	0	1	0	0	0	0	0	0	1	
237	276	284	416	0	121	303	2000	63	6	4844	
2	0	9	0	0	0	0	24	1	0	48	
0	0	0	0	0	0	1	0	1	0	3	
296	348	630	548	0	197	337	2528	70	6	6460	



TABLE 31W. C & D CANAL TRAWL SURVEY

SPECIES	NUMBERS OF FISH BY SPECIES PER MILE TRAWLED , 04/73									
	STATIONS									
	100	101	102	103	104	104H	105AB	105	105H	106AB
ALEWIVES	4	8	0	0	0	8	0	0	0	0
AMERICAN EEL	20	16	52	0	20	80	10	1	0	60
BLUE HERRING	0	0	0	0	0	0	0	0	0	0
BULLHEADS	1	34	131	0	12	12	30	3	0	32
CATFISH, WHITE	0	0	5	0	4	0	5	0	0	0
CHNL CATFISH	14	3	24	0	10	8	90	1	10	14
DARTER, JOHNNY	0	0	0	0	0	0	0	0	0	10
HOGCHOKER	12	16	10	0	113	28	20	43	24	36
RANGIA SHELLS	0	0	0	0	0	8	0	1	0	0
RANGIA CLAMS	0	0	0	0	0	8	0	0	0	1
SCALED CARP	0	0	0	0	0	0	2	0	0	0
PUMPKINSEED	0	0	0	0	0	0	5	0	0	0
WHITE PERCH	165	278	135	0	341	872	1040	102	246	140
YELLOW PERCH	4	0	0	0	0	0	0	0	0	1
STRIPED BASS	8	5	8	0	18	2	5	104	6	4
TOTALS	228	360	365	0	518	1026	1207	256	286	298

2

URVEY

E TRAWLED , 04/73

TOTALS									
04H	105AB	105	105H	106AB	106	106H	107	108	
8	0	1	0	0	4	0	0	0	25
80	10	1	0	60	0	0	0	0	259
0	0	0	0	0	1	0	3	0	4
12	30	3	0	32	0	0	0	0	255
0	5	0	0	0	0	0	0	0	14
8	90	1	10	14	0	50	0	0	224
0	0	0	0	10	0	20	0	0	30
28	20	43	24	36	9	60	1	0	372
8	0	1	0	0	0	0	0	0	9
8	0	0	0	1	0	0	0	0	9
0	2	0	0	0	0	0	0	0	2
0	5	0	0	0	0	0	0	0	5
872	1040	102	246	140	24	880	30	0	4253
0	0	0	0	1	0	0	0	0	5
2	5	104	6	4	4	4	3	0	171
1026	1207	256	286	298	42	1014	37	1	5637



TABLE 31X. C & D CANAL TRAWL SURVEY

SPECIES	NUMBERS OF FISH BY SPECIES PER MILE TRAWLED , 05/73									
	STATIONS									
	100	101	102	103	104	104H	105AB	TOTALS 105	105H	106AB
ALEWIVES	0	5	0	0	0	0	0	0	0	0
AMERICAN EEL	80	65	2	0	10	340	28	0	0	19
ANCHOVIES	0	10	1	0	0	0	0	0	0	5
BLUE HERRING	0	0	0	0	5	0	2	0	0	6
BULLHEADS	9	27	4	0	10	0	64	0	12	26
CATFISH WHITE	0	0	0	0	22	0	0	0	0	0
CHNL CATFISH	7	16	3	0	52	28	32	6	26	14
GIZZARD SHAD	0	0	0	0	0	0	0	0	0	0
HICKORY SHAD	0	0	3	0	5	0	0	0	0	0
HOGCHOKER	320	33	5	0	65	160	40	1	200	0
MENHADEN	0	0	0	0	0	0	0	0	0	0
PUMPKINSEED	0	15	0	0	0	0	2	0	0	0
WHITE PERCH	168	820	120	0	1300	1900	686	14	1280	833
YELLOW PERCH	0	0	0	0	0	0	0	0	10	0
SCALED CARP	0	1	5	0	3	26	18	0	6	2
STRIPED BASS	0	2	1	0	18	0	2	0	10	5
TOTALS	584	994	144	0	1490	2454	874	21	1544	910

2

LED , 05/73

TOTALS								
105AB	105	105H	106AB	106	106H	107	108	
0	0	0	0	6	0	0	0	11
28	0	0	19	29	0	0	0	573
0	0	0	5	34	6	48	0	104
2	0	0	6	11	4	5	0	33
64	0	12	26	5	8	0	0	165
0	0	0	0	0	0	0	0	22
32	6	26	14	10	6	2	0	202
0	0	0	0	2	0	0	0	2
0	0	0	0	5	0	2	0	15
40	1	200	0	35	68	2	0	929
0	0	0	0	6	0	1	0	7
2	0	0	0	0	0	0	0	17
686	14	1280	833	266	160	20	0	7567
0	0	10	0	0	0	0	0	10
18	0	6	2	0	0	0	0	61
2	0	10	5	6	2	2	0	48
874	21	1544	910	415	254	82	0	9766



Table 32. List of fishes in order of total numbers caught by  
 trawl net in Maryland survey of C and D Canal region from  
 December 1970 to May 1973.

Rank	Common name	Number of fish
1	White perch	119,849
2	Bay anchovy	21,977
3	Hogchoker	7,863
4	Brown bullhead	5,276
5	Channel catfish	4,763
6	Weakfish	3,862
7	Spot	3,756
8	American eel	3,629
9	Atlantic menhaden	2,187
10	White catfish	2,168
11	Striped bass	2,035
12	Yellow perch	1,535
13	Johnny darter	1,216
14	Blueback herring	1,113
15	Gizzard shad	627
16	Alewife	349
17	Carp	252
18-39	Species with less than 100	<u>9,791</u>
	Grand Total	192,248

1

[illegible]



2

SURVEY  
FISH OF ALL SPECIES BY MONTH

H	105AB	105	105H	106AB	106	106H	107	108	TOTALS
100	0	36	504	0	53	886	27	27	11997
0	3305	0	0	2182	125	214	40	19	8618
4662	0	491	528	0	509	606	127	292	11187
1110	885	430	2594	1056	478	1000	143	143	10398
1668	2473	23	344	105	32	866	39	30	8095
416	1805	233	3338	3208	438	142	801	434	12800
1004	3051	209	898	3426	82	858	123	315	13678
2686	1060	134	721	1334	209	1384	184	1033	11837
5692	4264	370	4028	2335	1018	1424	730	919	26886
394	214	76	238	344	48	1256	29	58	3726
270	707	99	210	351	35	248	9	14	2487
266	524	173	304	790	38	262	27	40	3048
1034	310	146	150	317	323	320	61	172	4373
930	2003	188	514	629	40	356	16	60	7014
510	786	124	556	202	13	386	9	10	3120
746	1885	817	660	2518	47	32	708	333	10291
732	1392	360	296	1070	120	1298	286	168	7831
414	587	279	2054	1203	90	304	168	364	8789
78	260	27	162	43	23	134	13	12	1781
0	0	42	0	185	0	0	0	8	1199
128	384	69	46	236	9	250	9	5	1228
348	630	548	0	197	337	2528	70	6	6460
1026	1207	256	286	298	42	1014	37	1	5638
2454	874	21	1544	910	415	254	82	0	9766

6668 28606 5151 19974 22939 4524 16022 3738 4463 192248

1212 1362 224 951 1043 197 697 162 194 8010

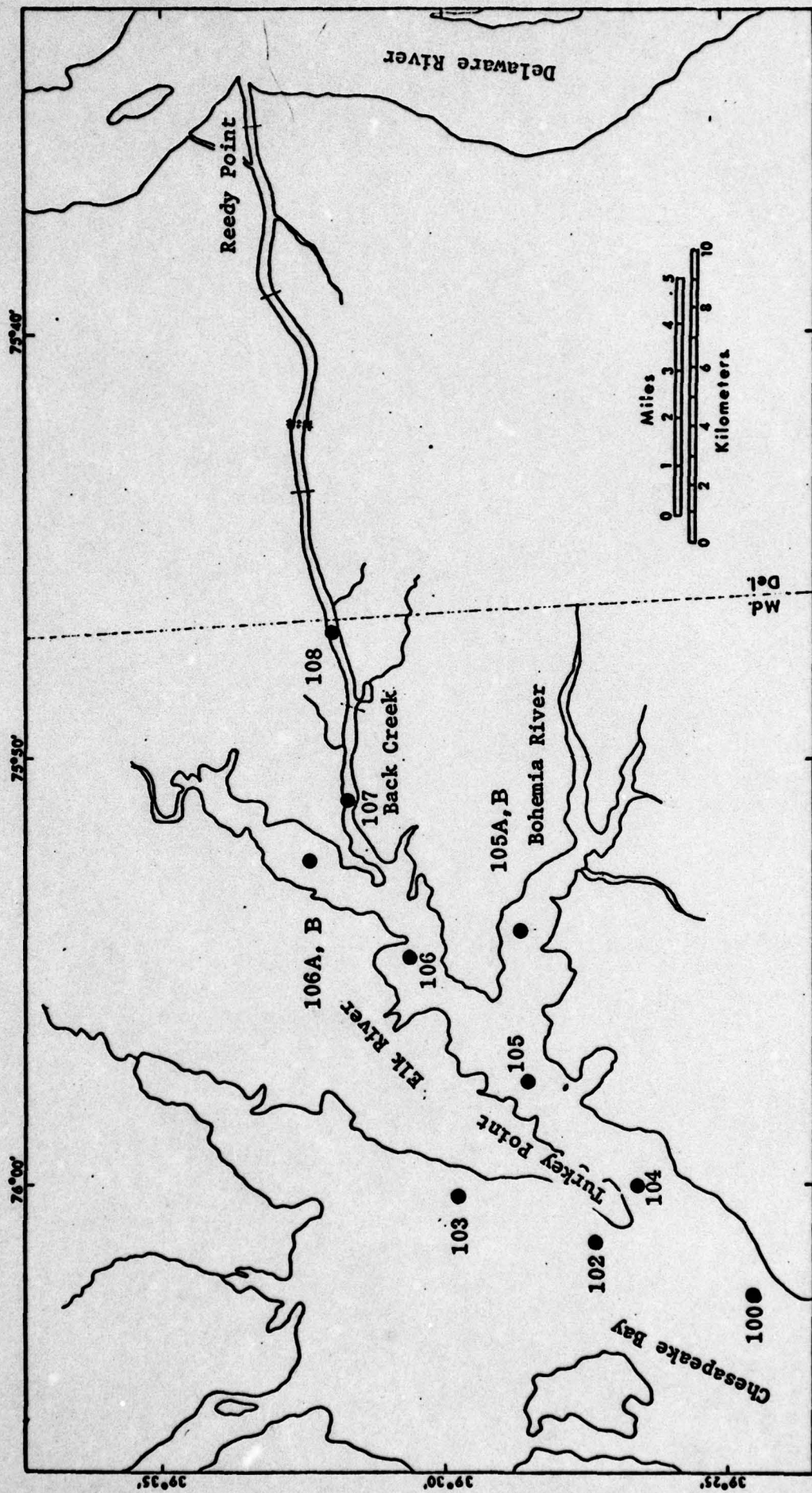
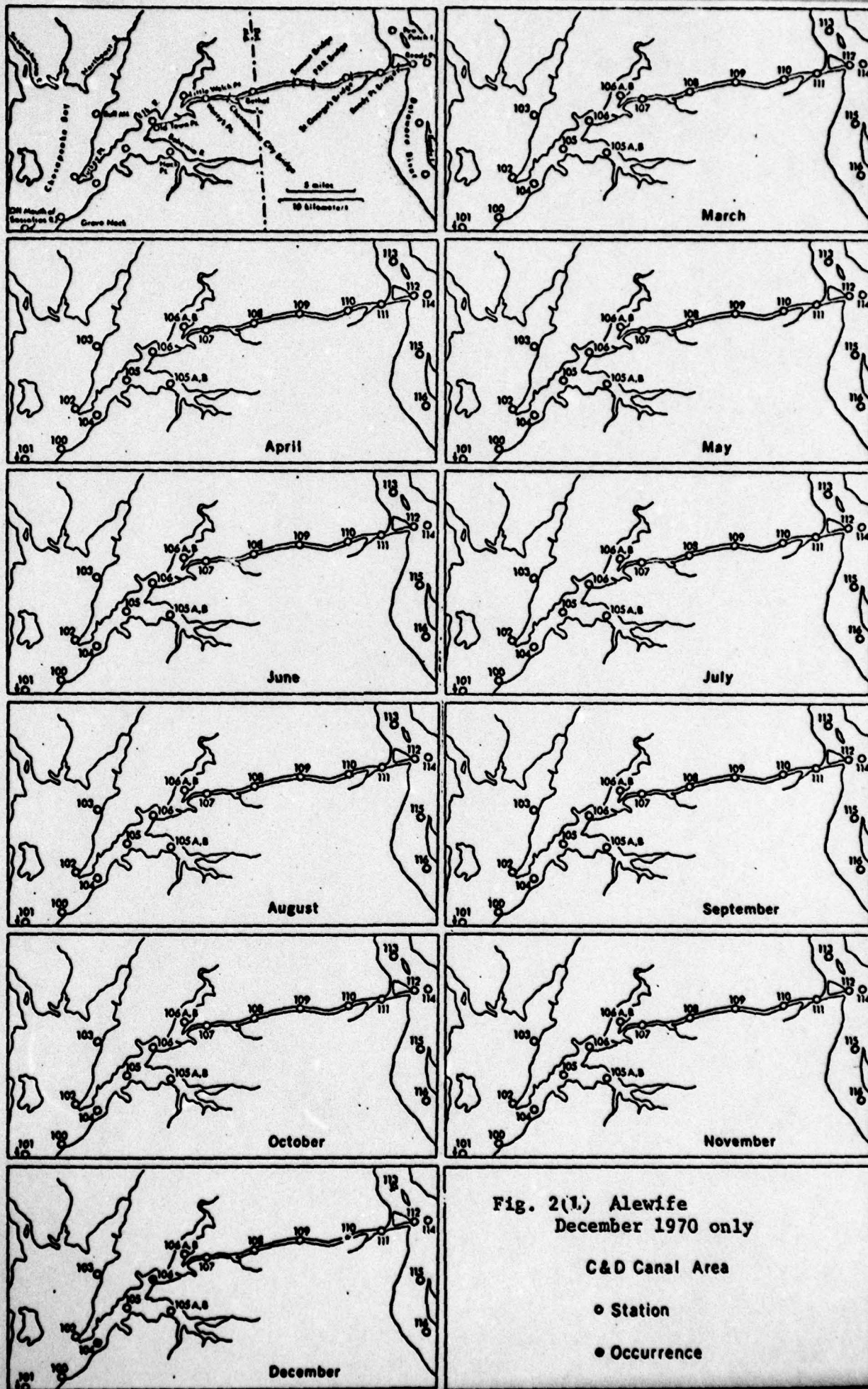
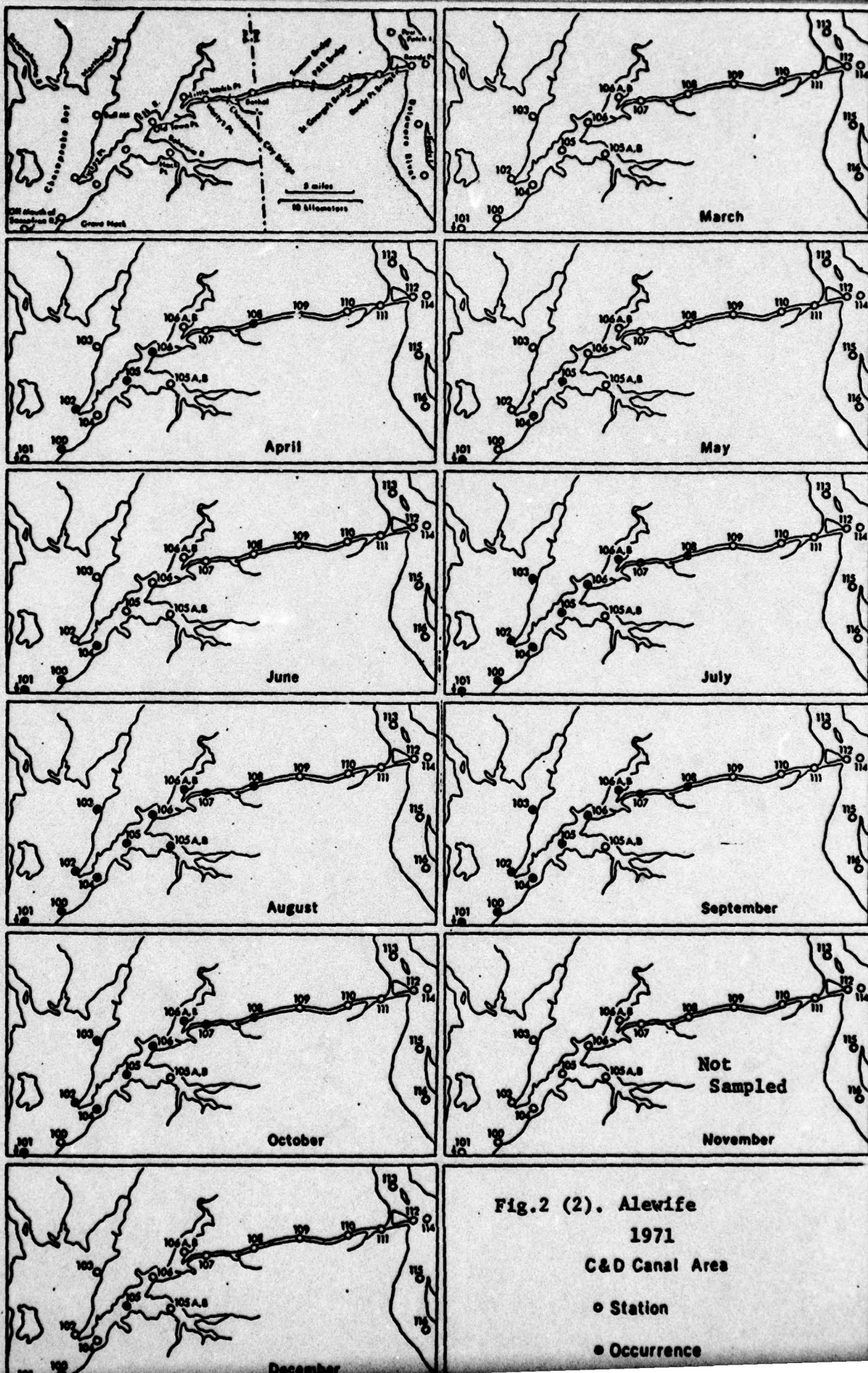


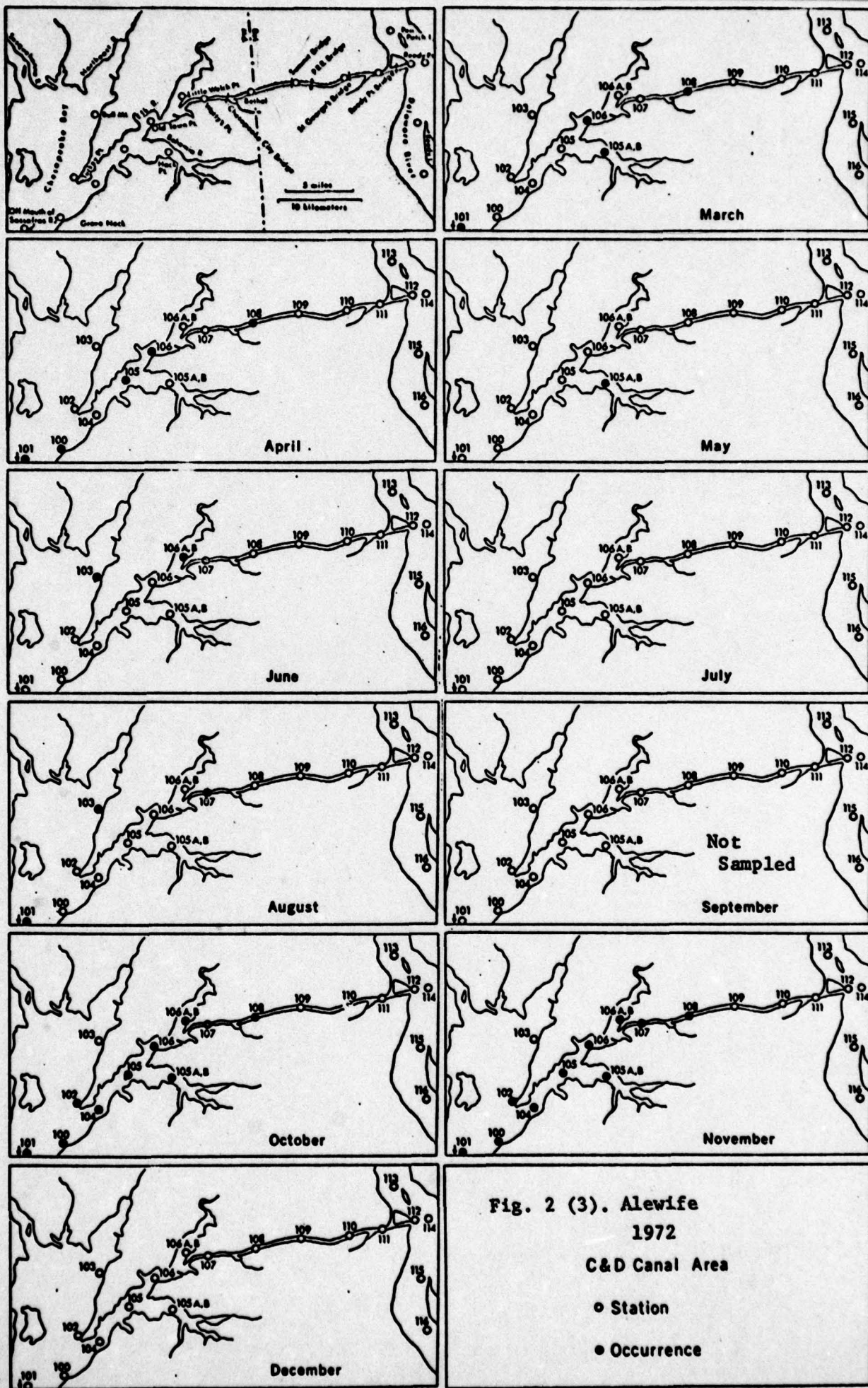
Fig. 1 Fish trawling stations, Maryland

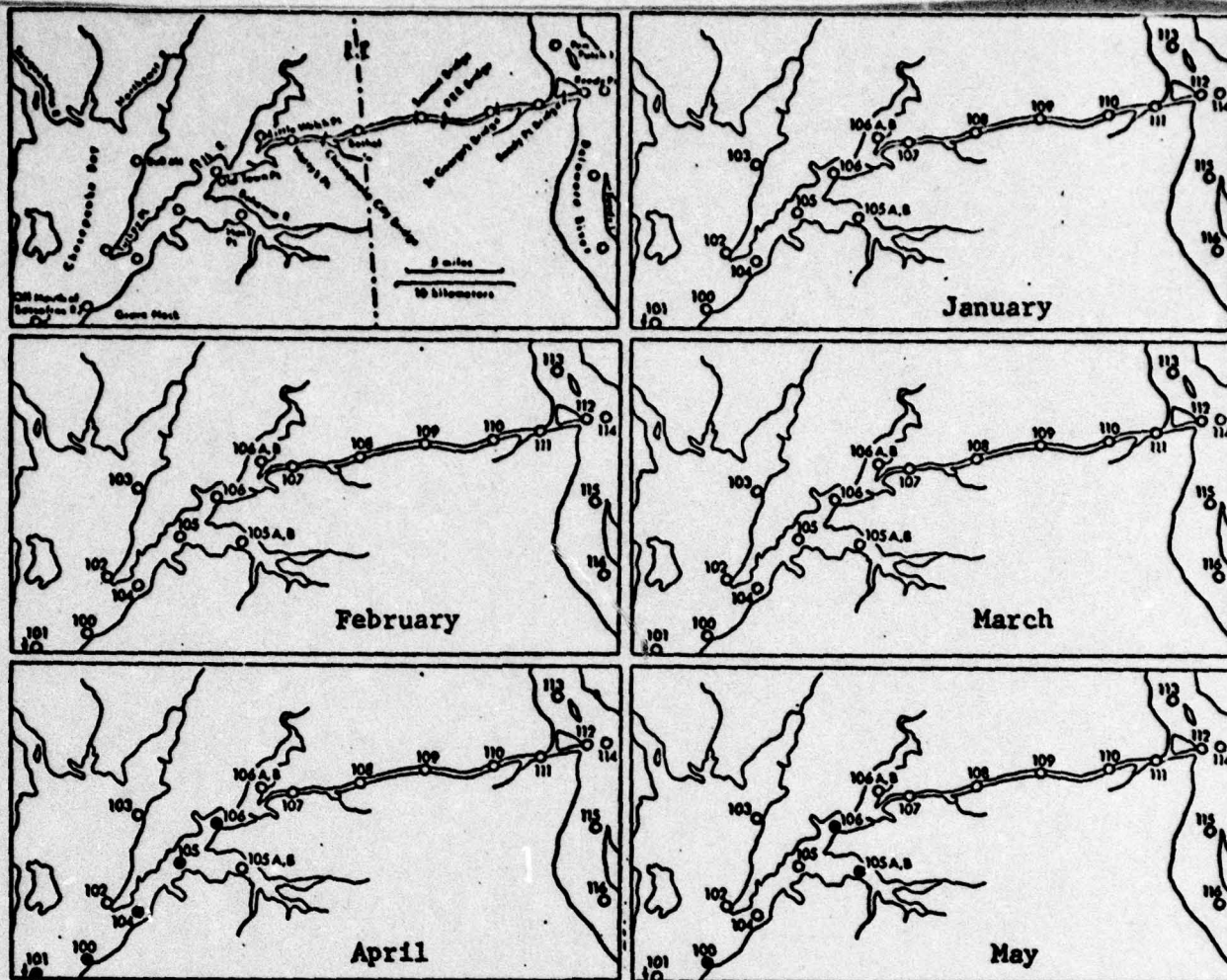














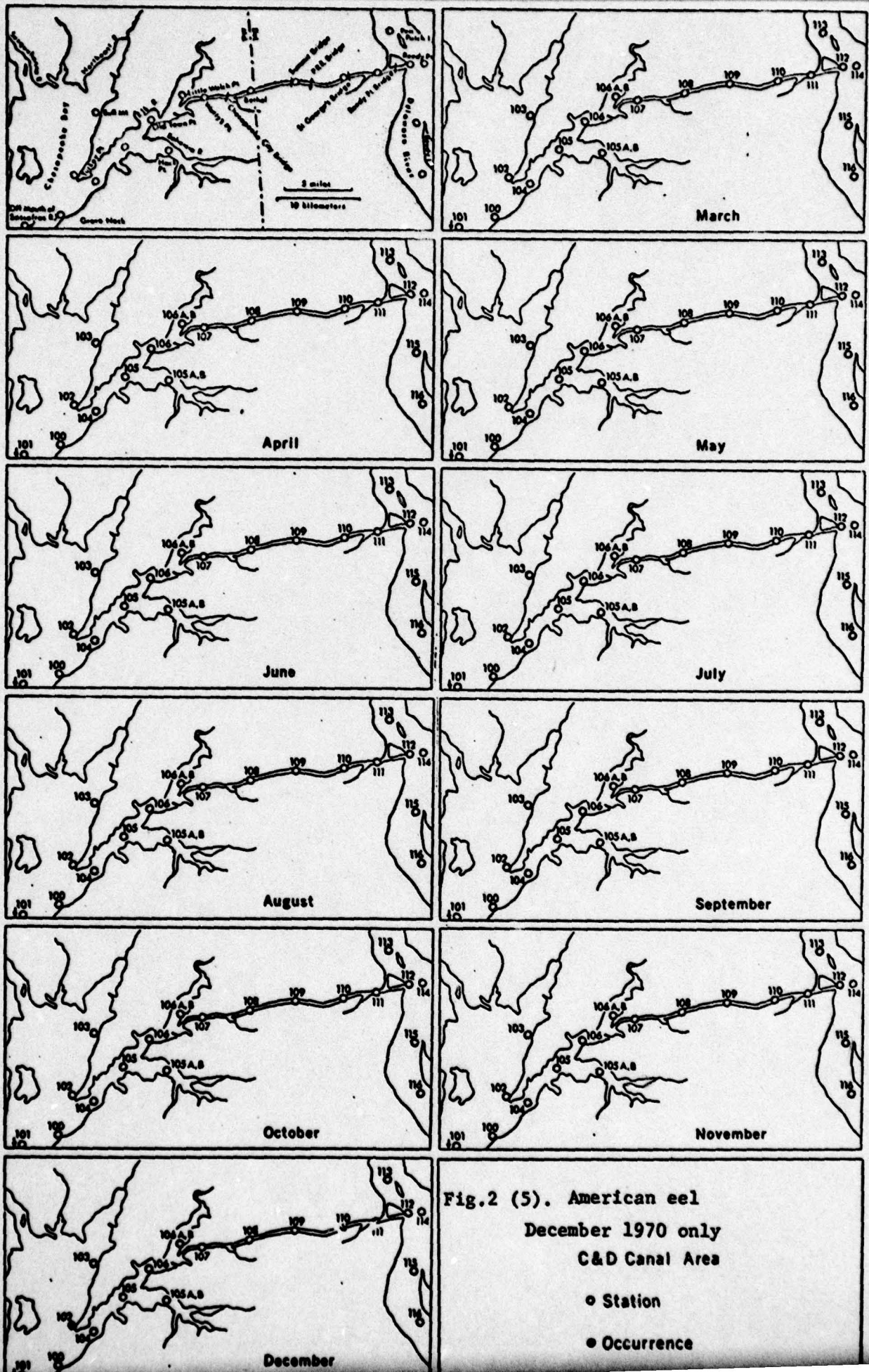
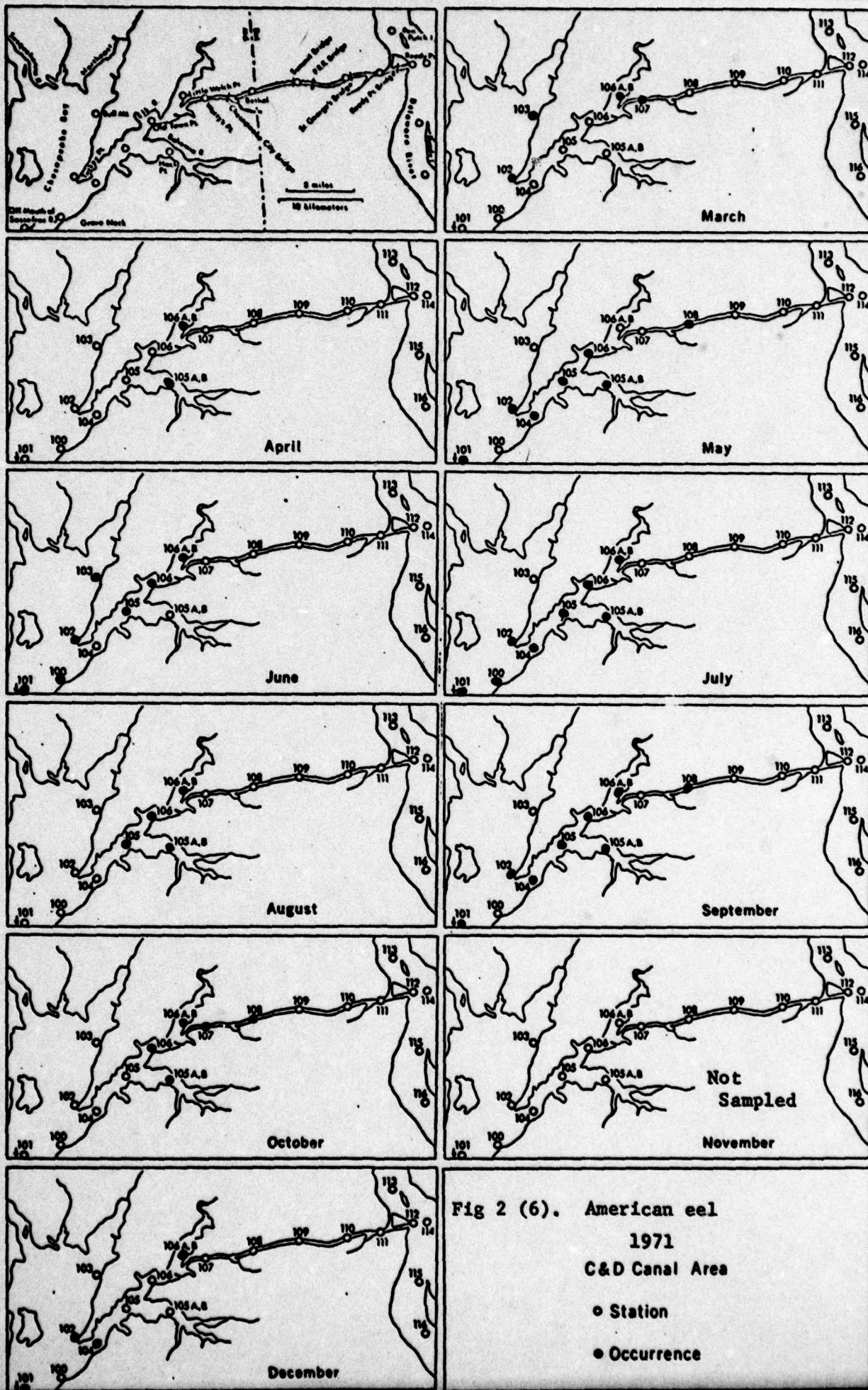
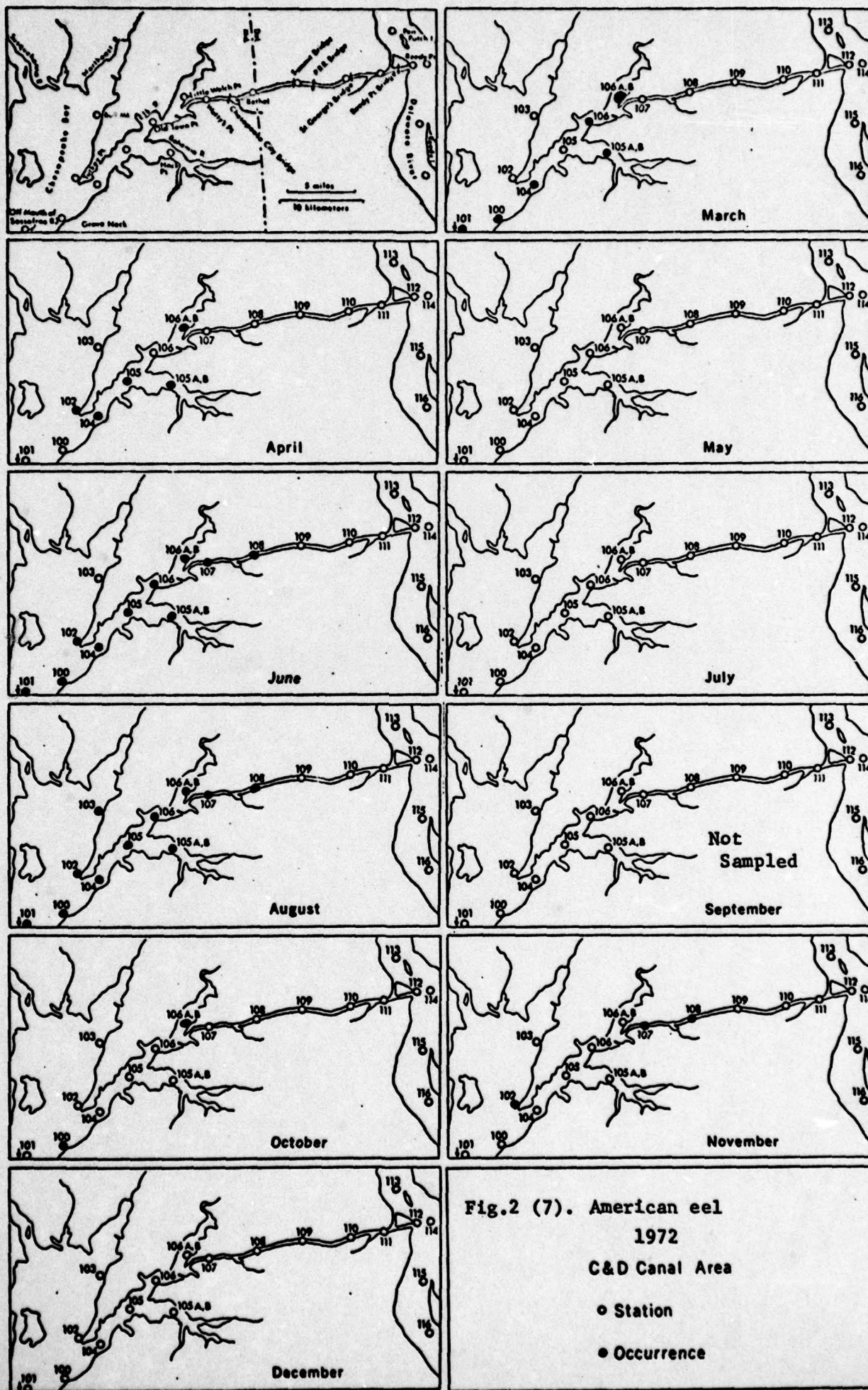


Fig.2 (5). American eel  
December 1970 only  
C&D Canal Area  
○ Station  
● Occurrence







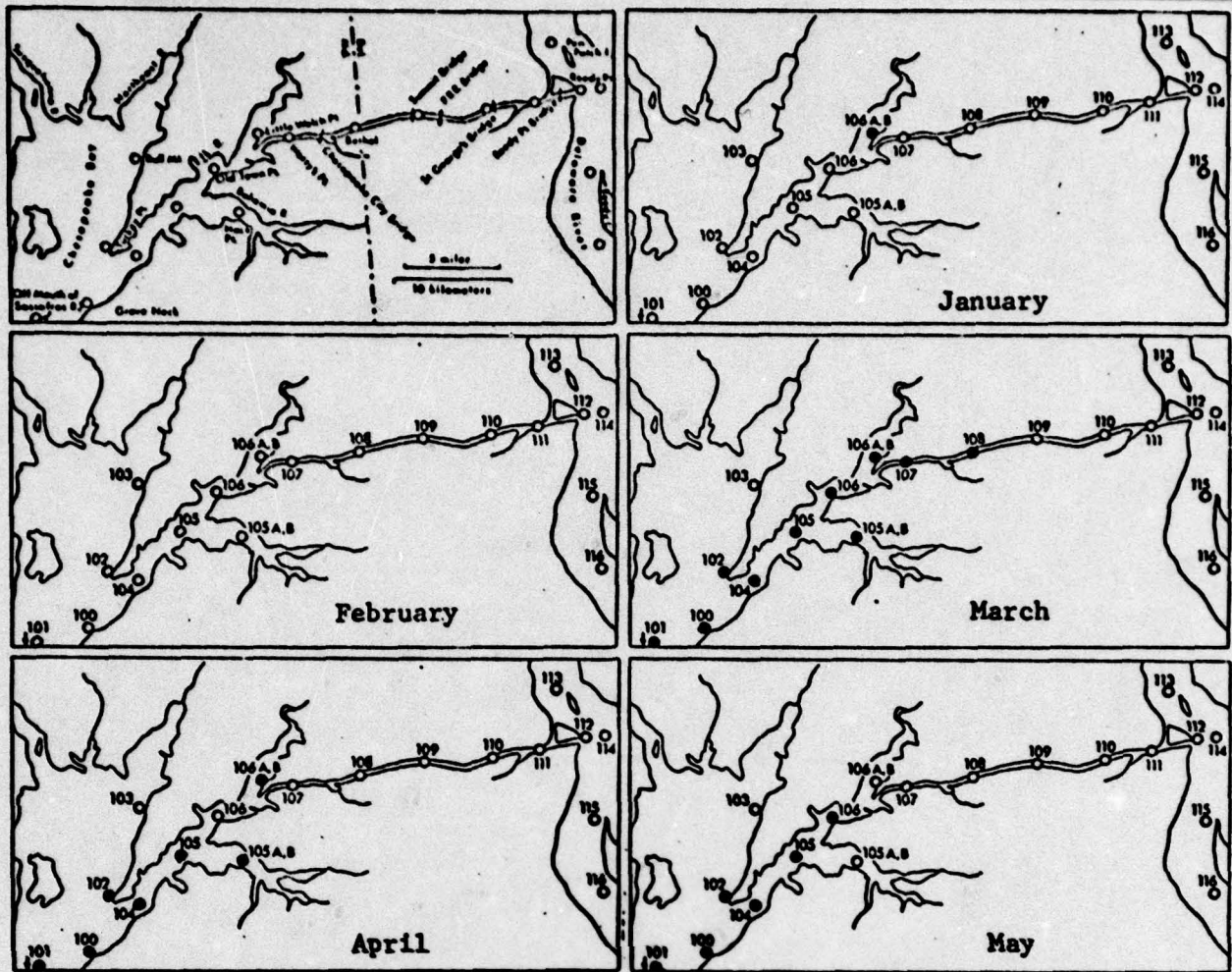
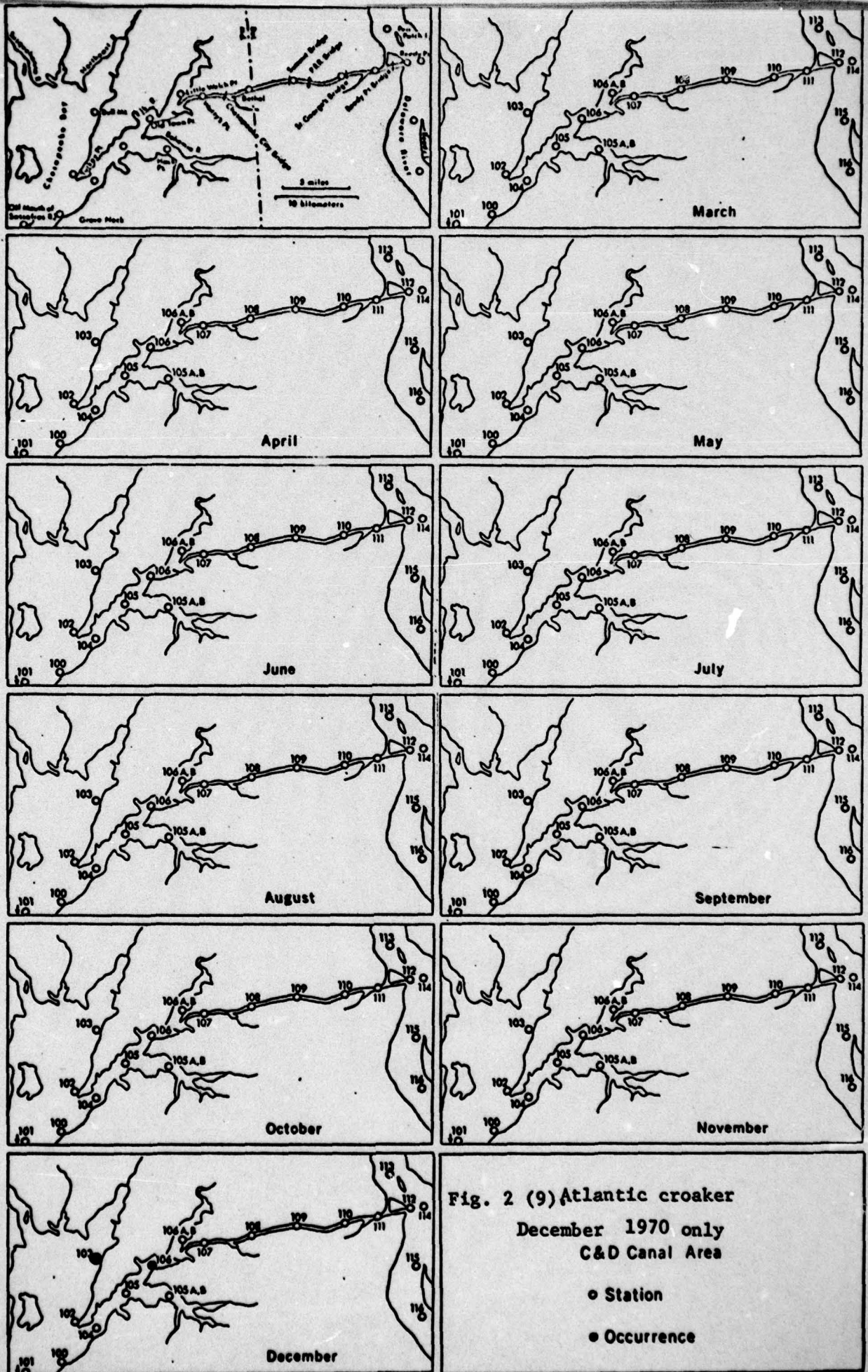
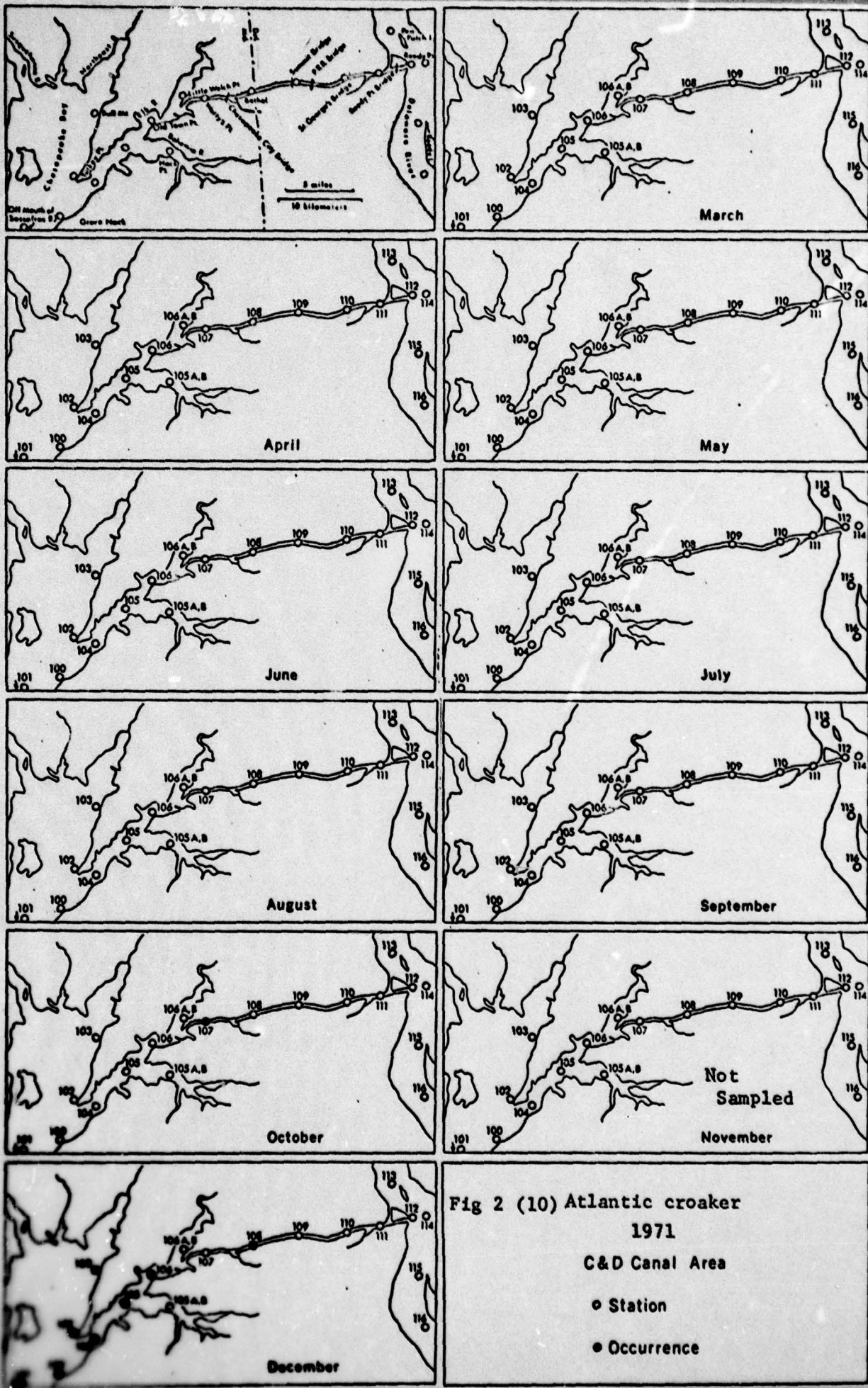


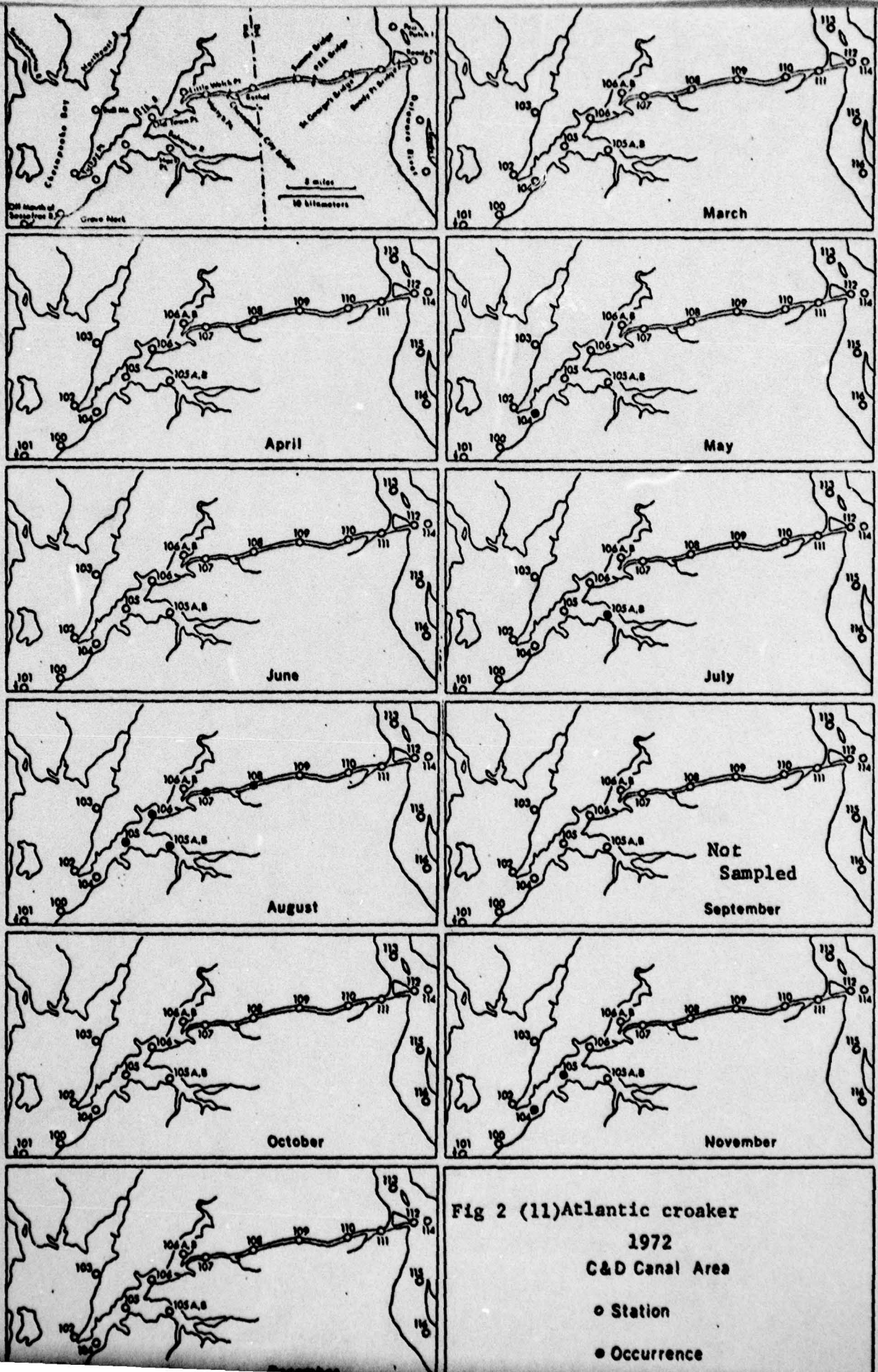
Fig 2 (8). American eel  
1973  
C&D Canal Area  
● Station  
● Occurrence

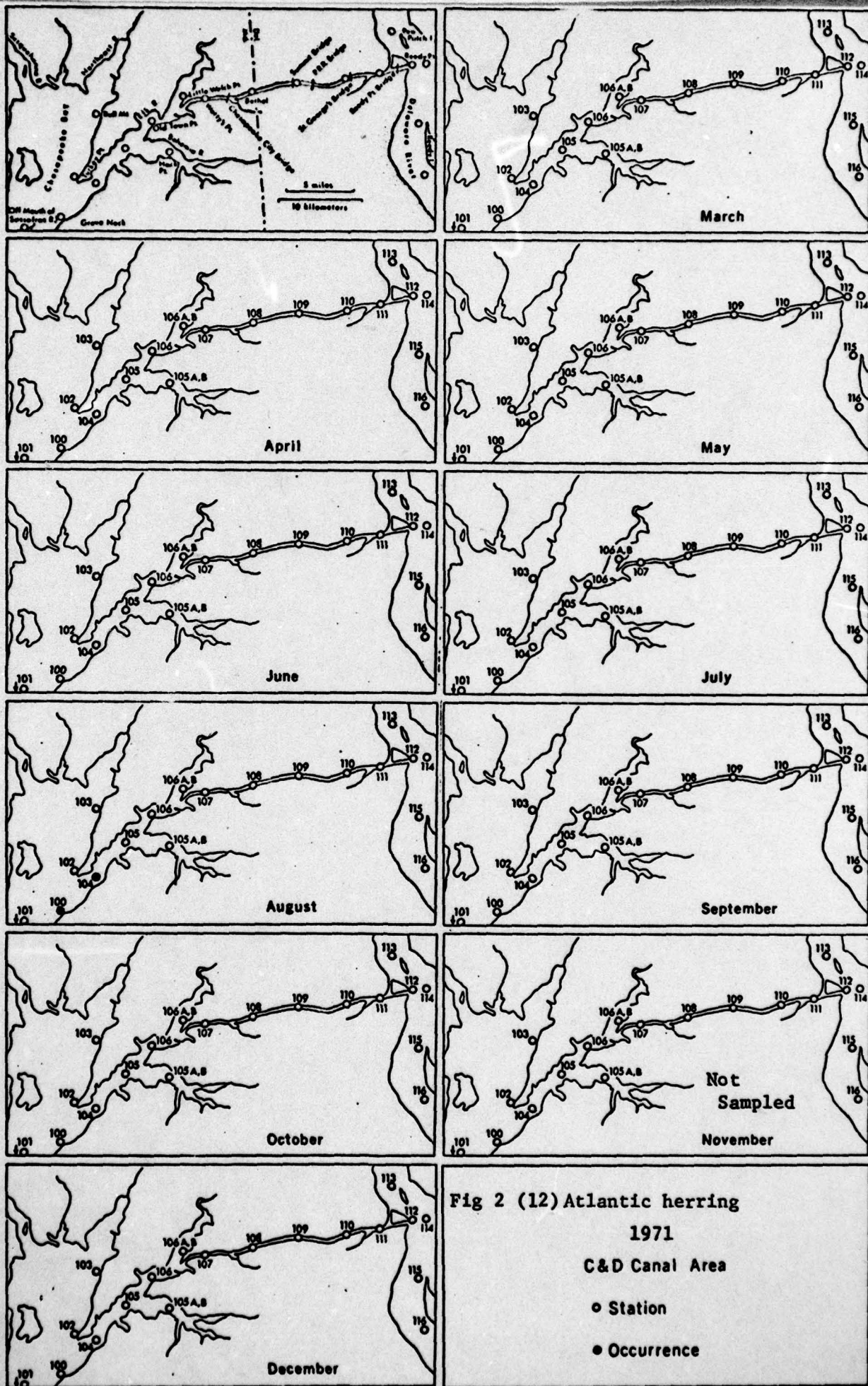




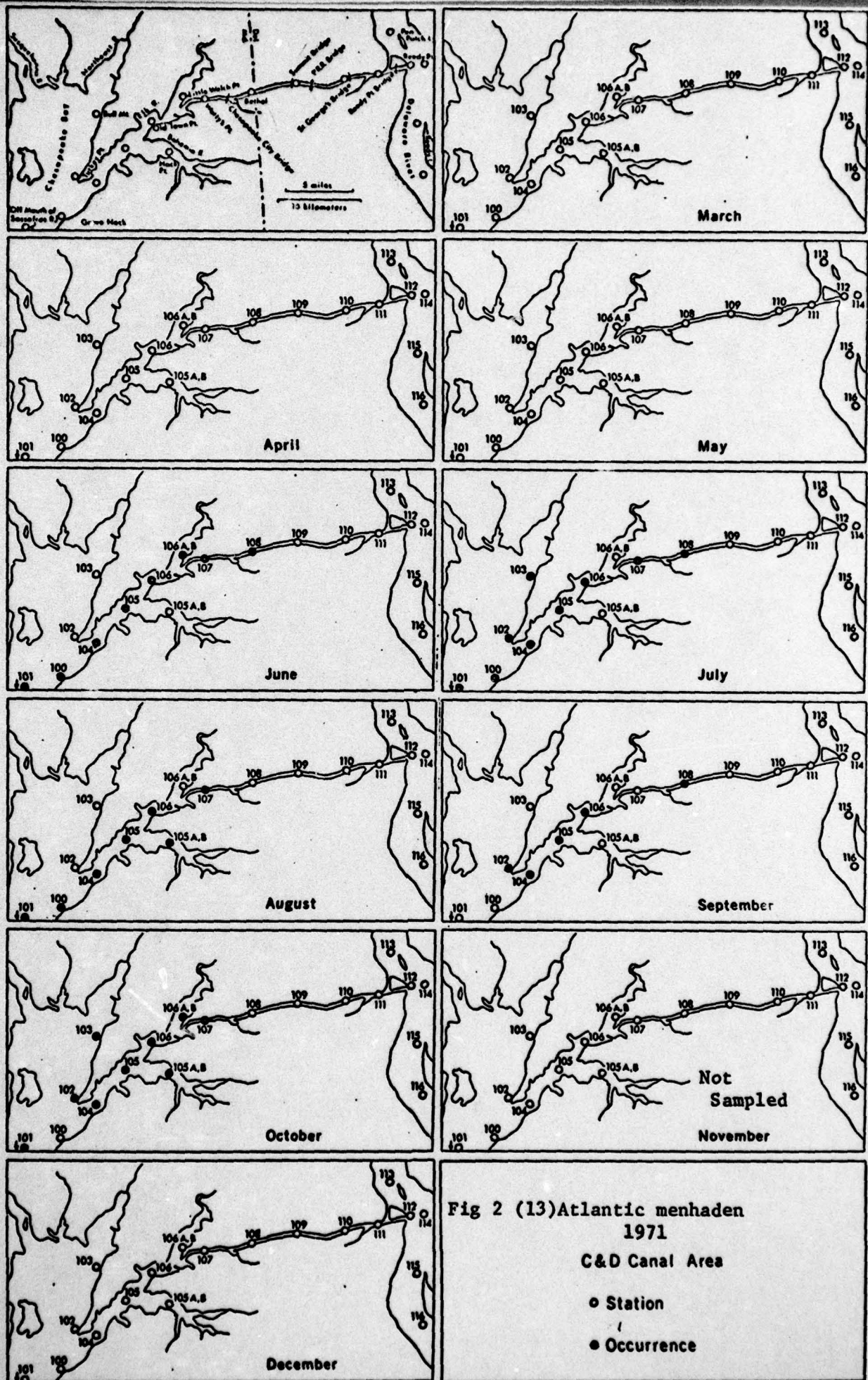


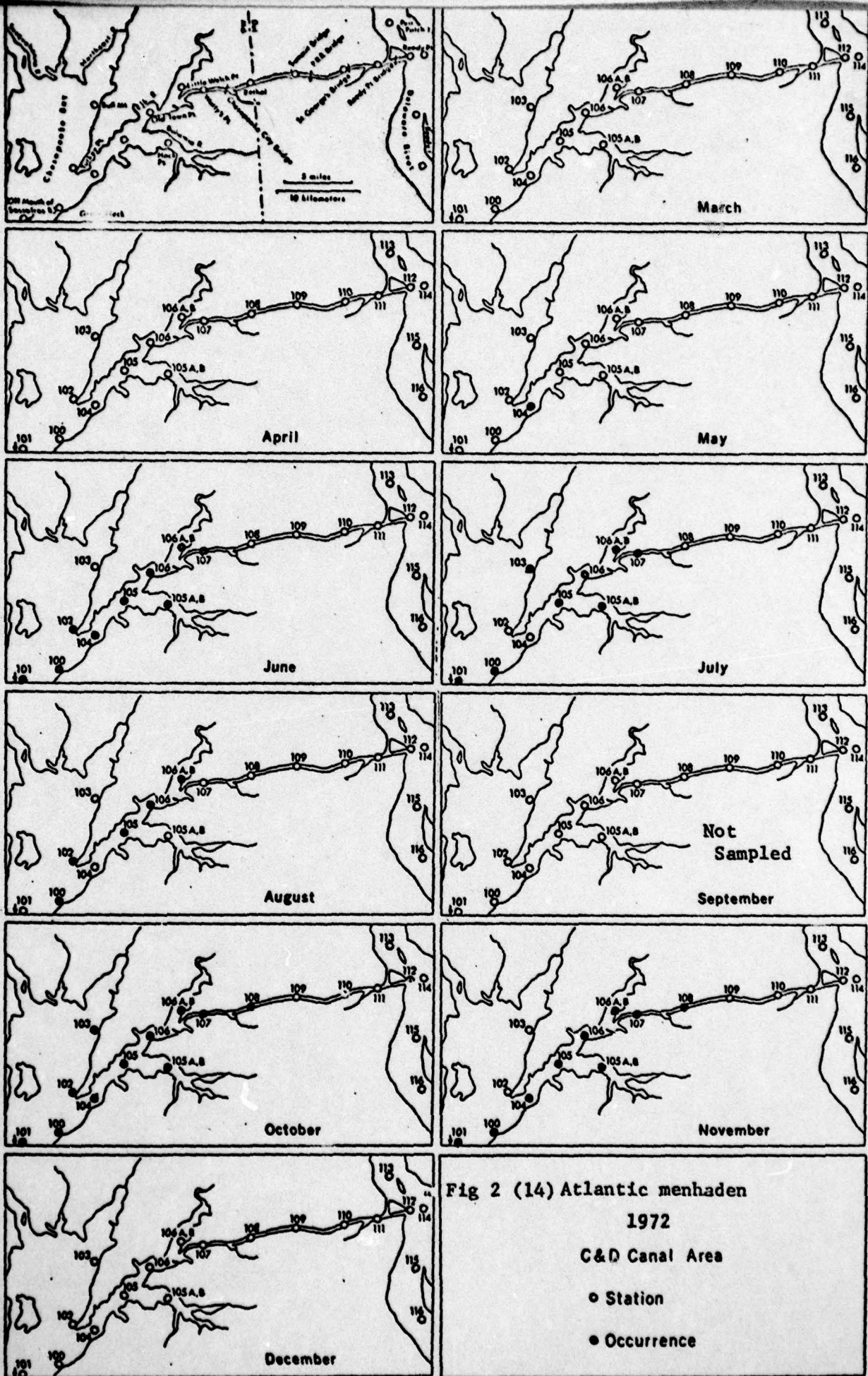














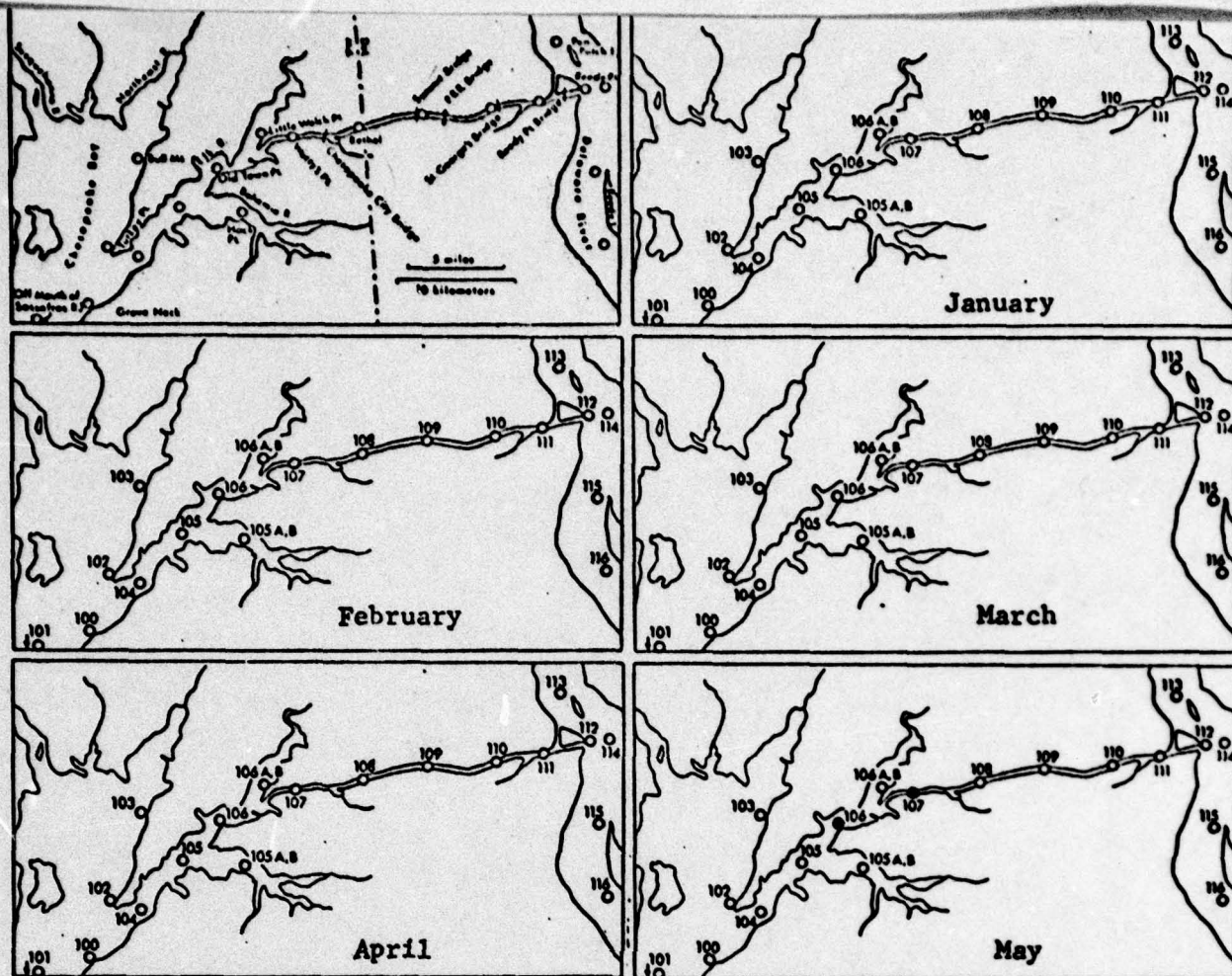
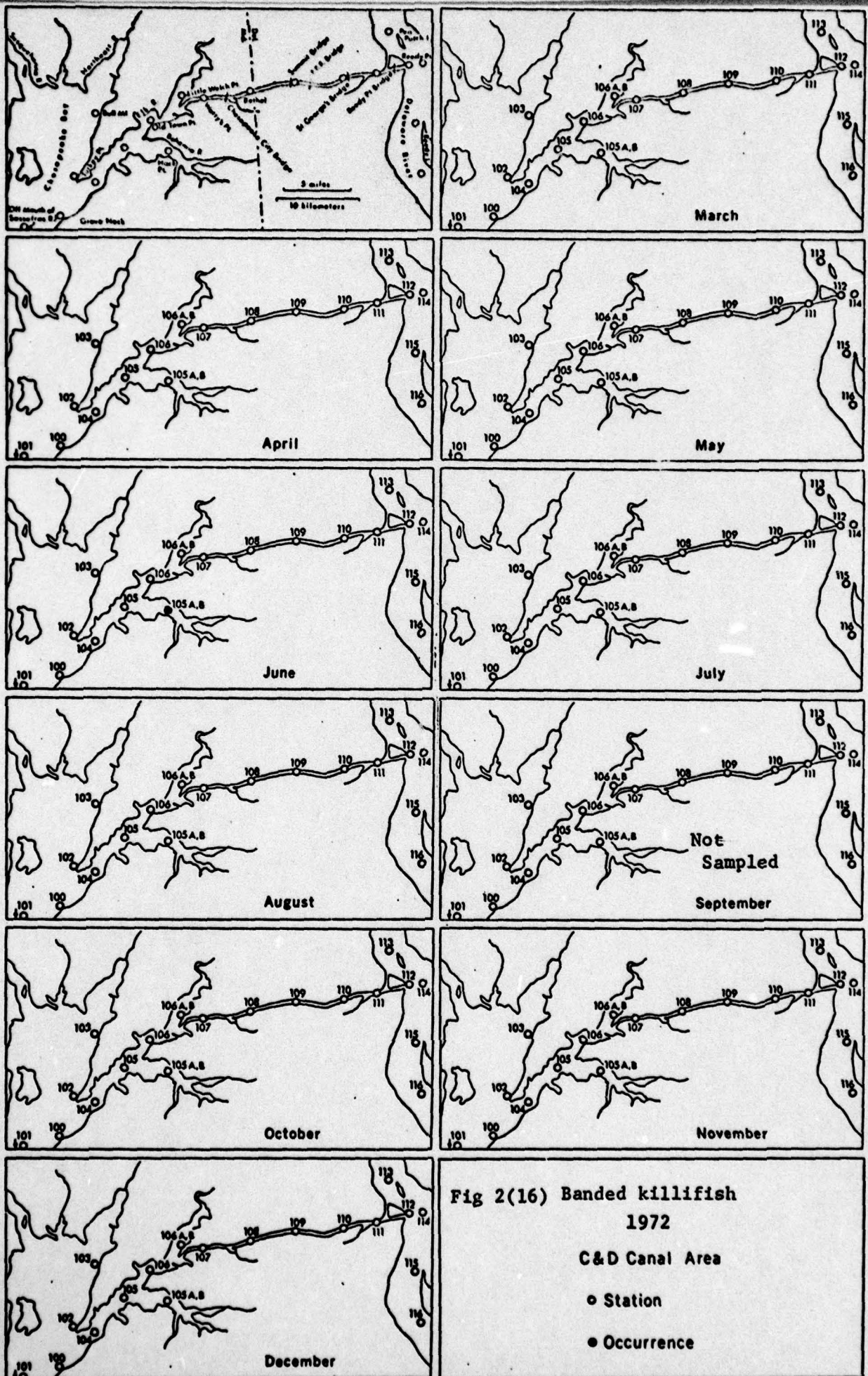


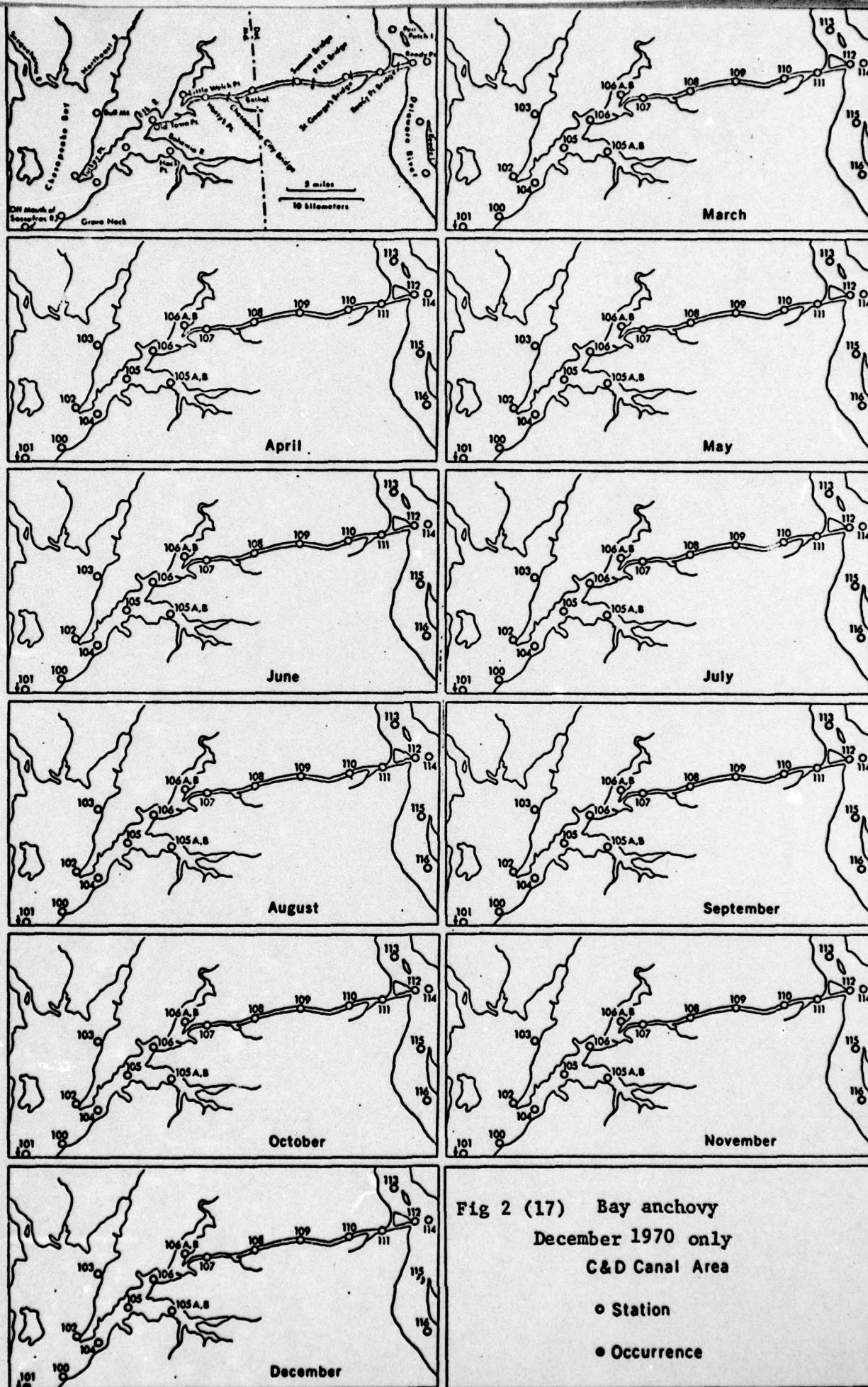
Fig 2 (15) Atlantic menhaden

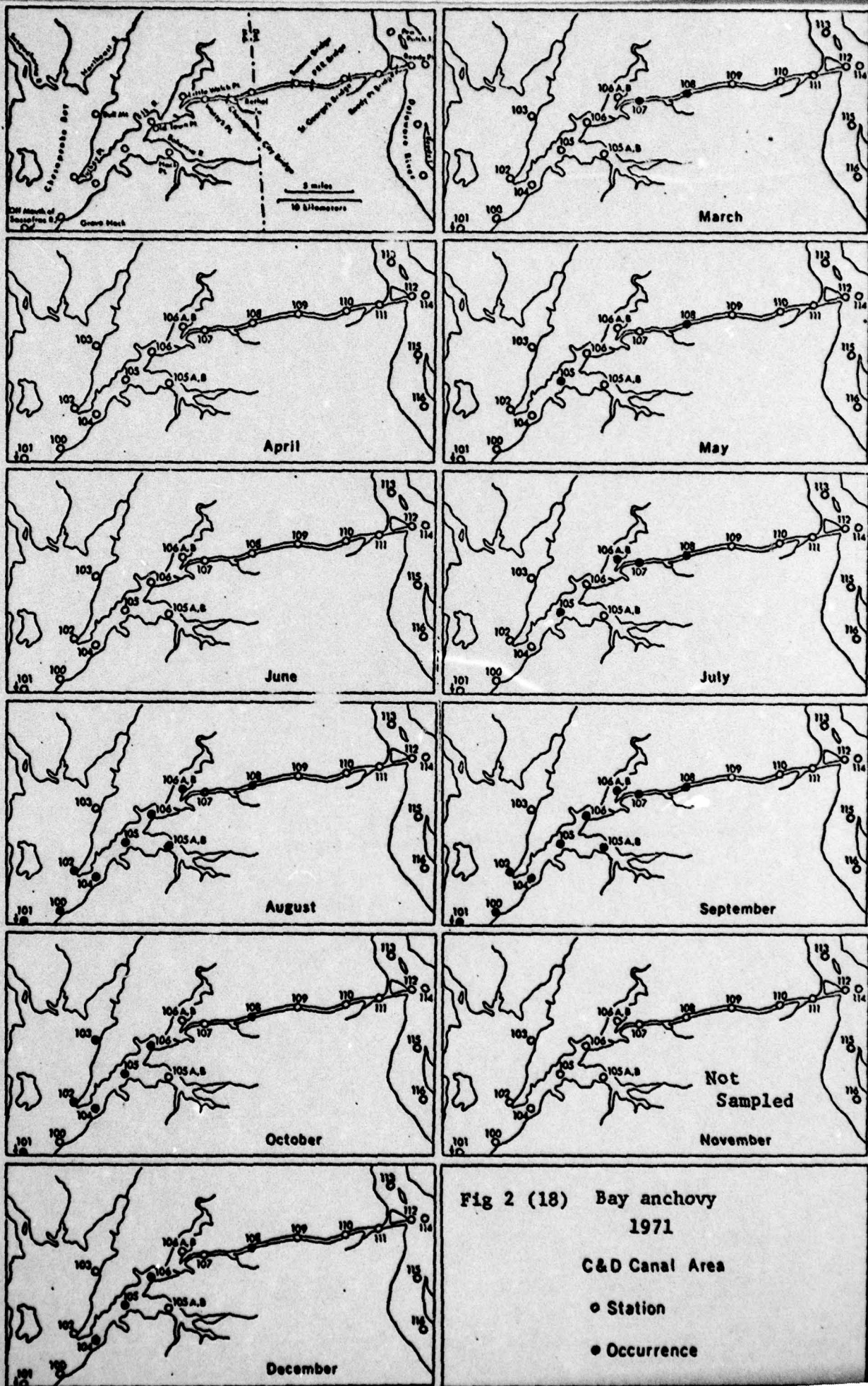
1973  
C&D Canal Area

- Station
- Occurrence

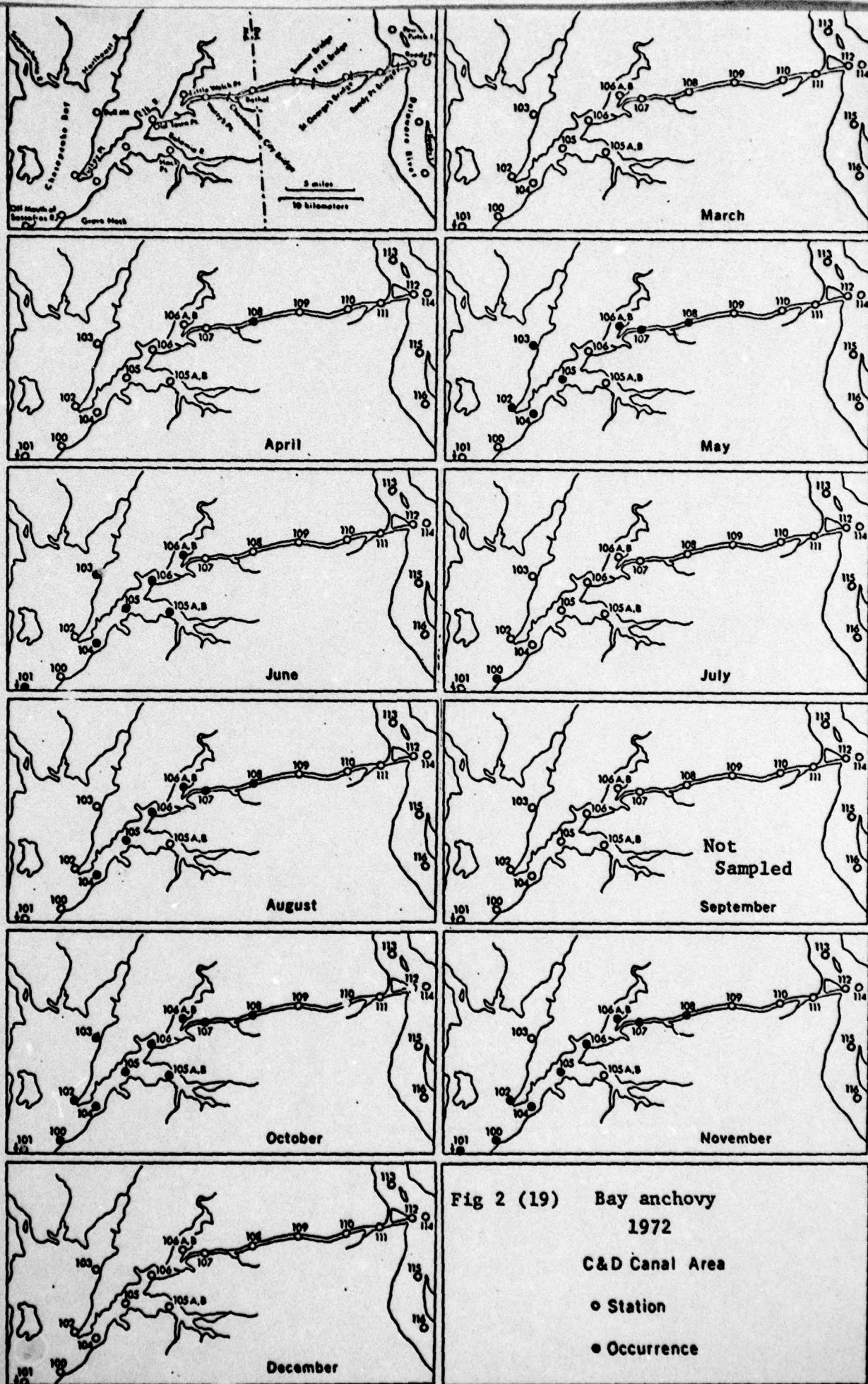


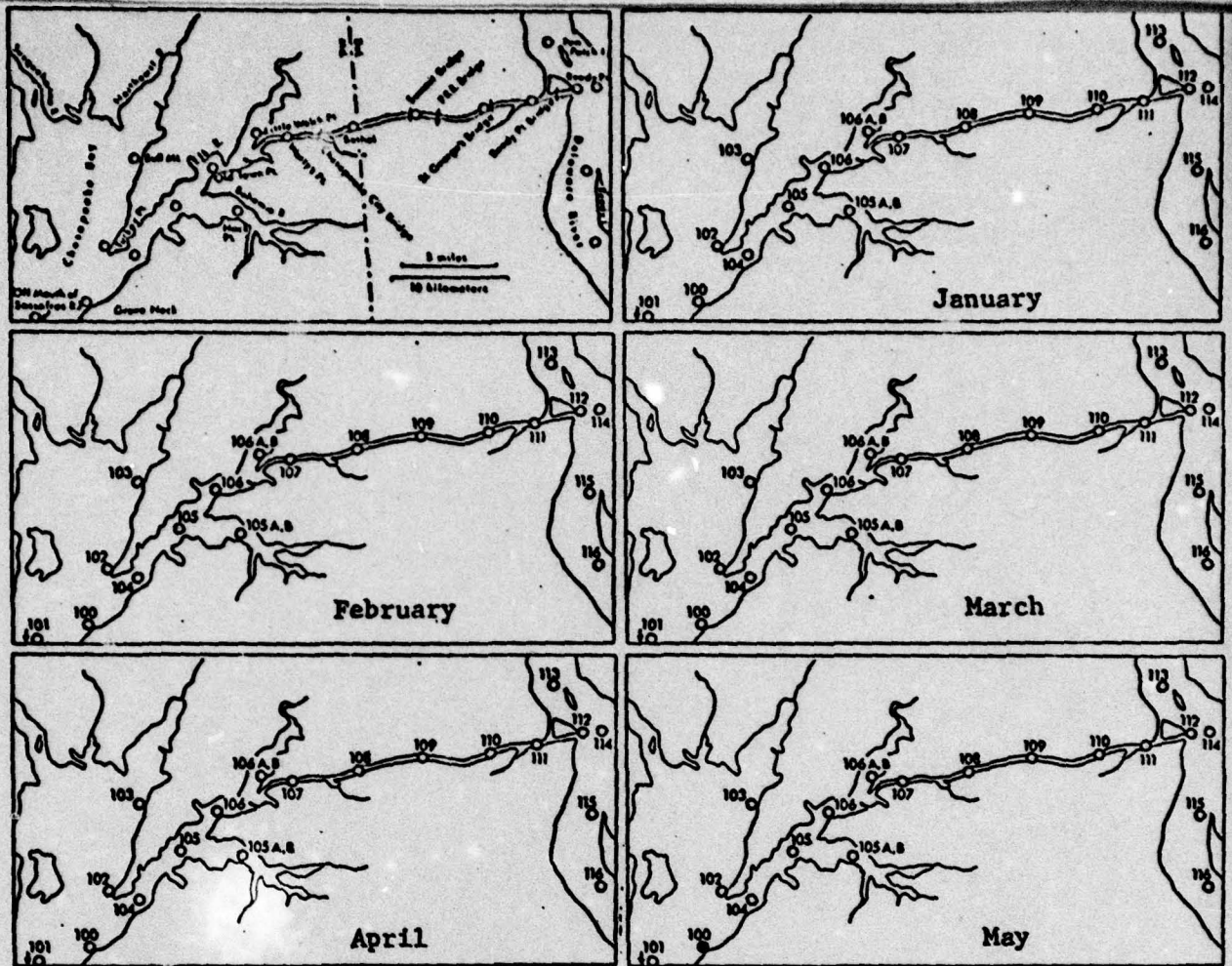




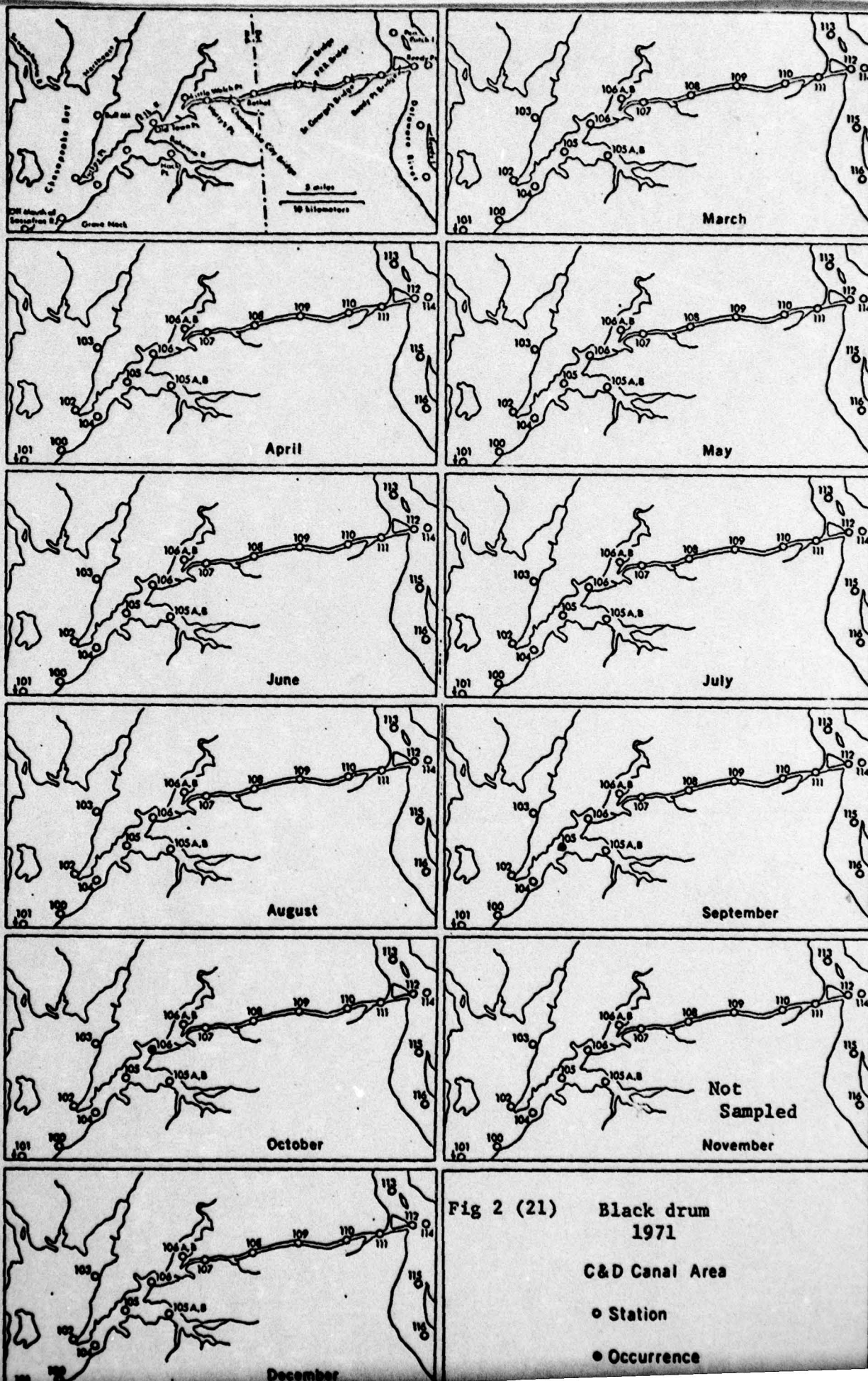


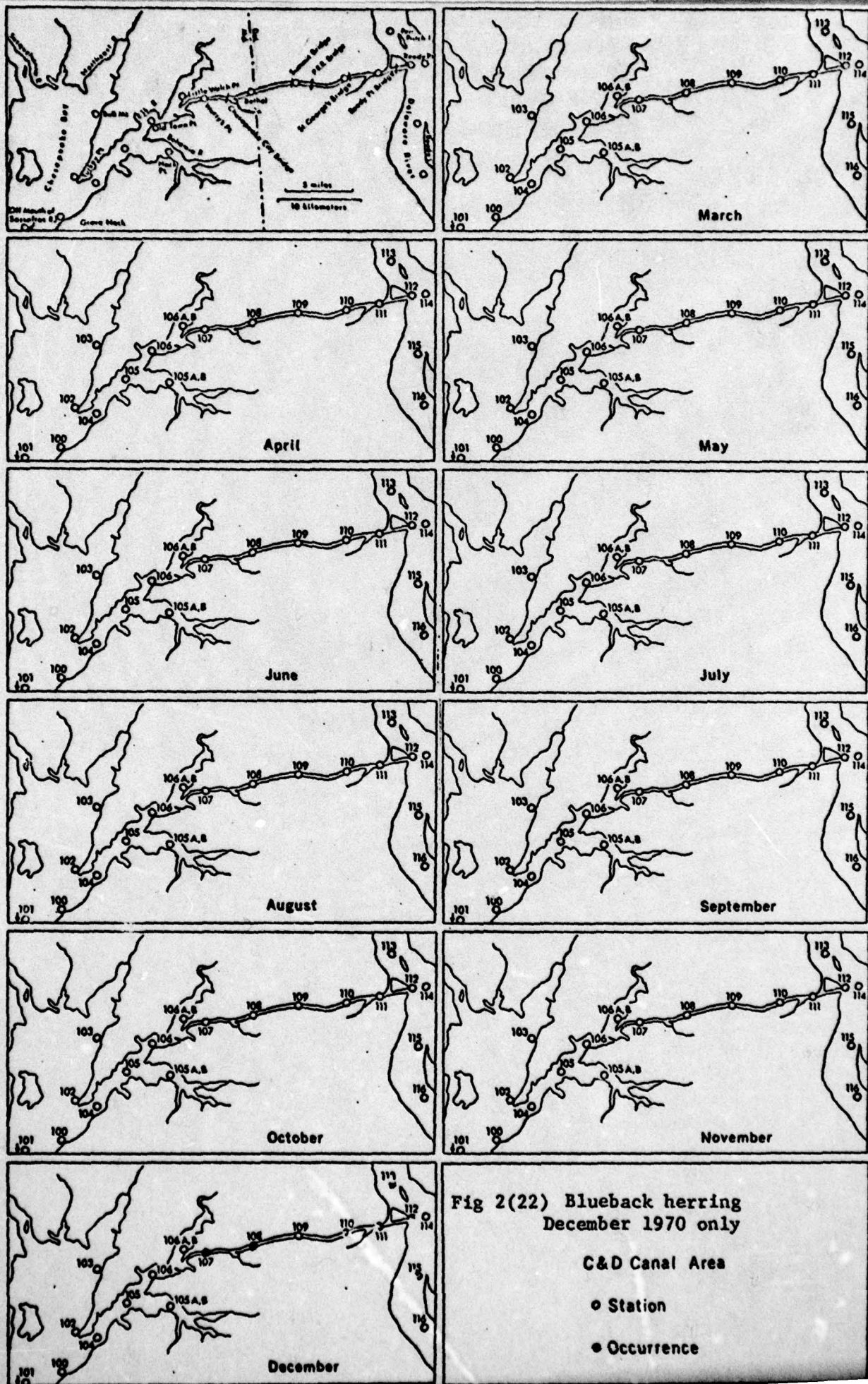














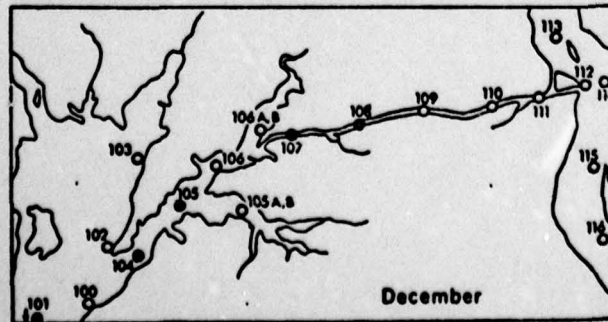
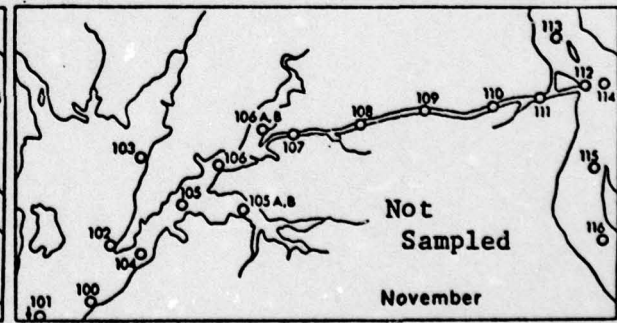
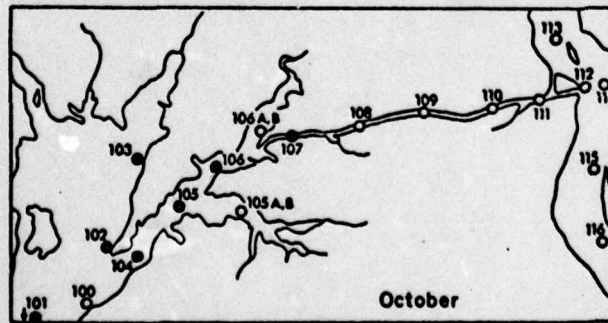
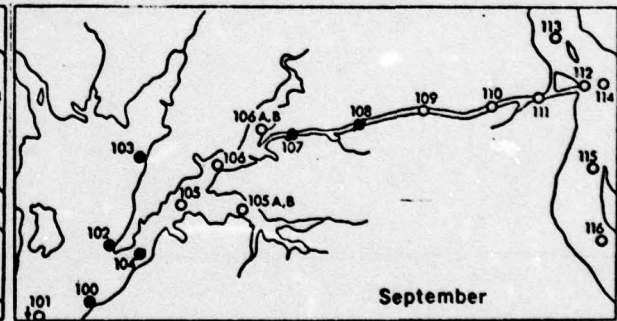
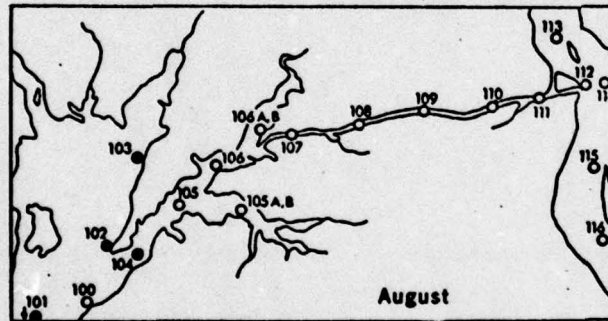
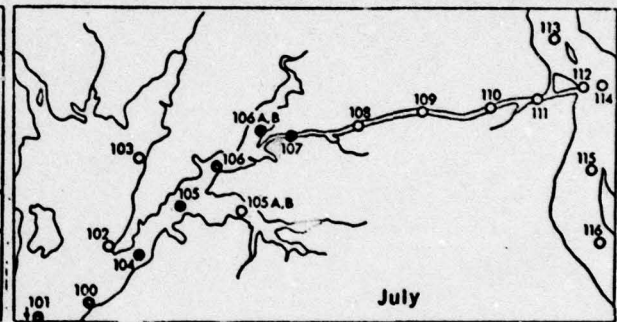
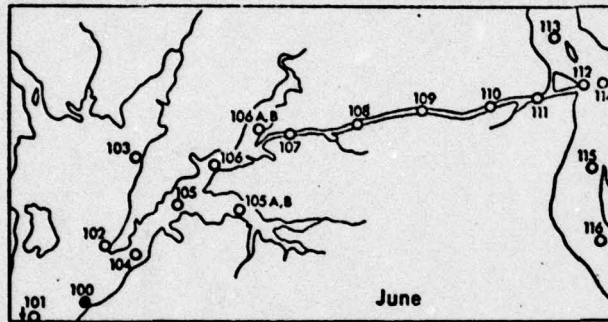
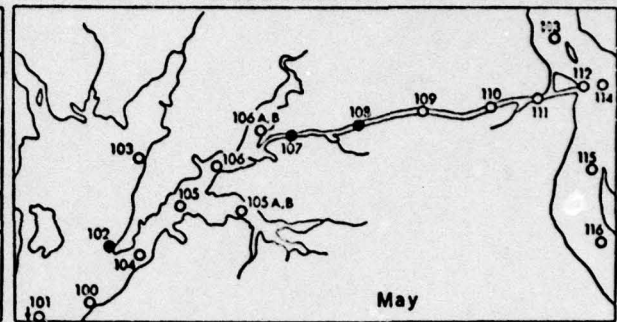
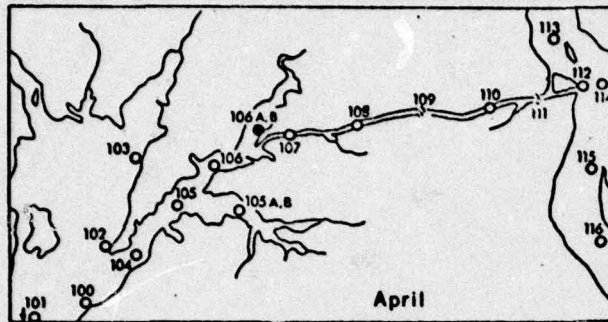
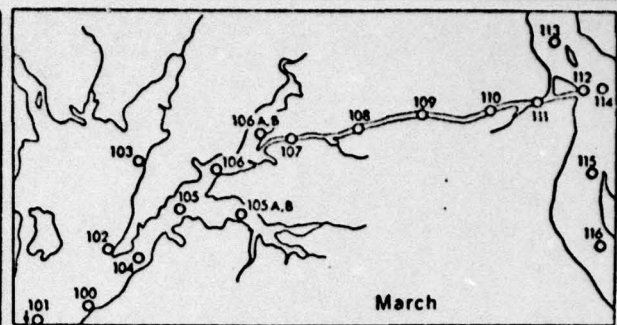
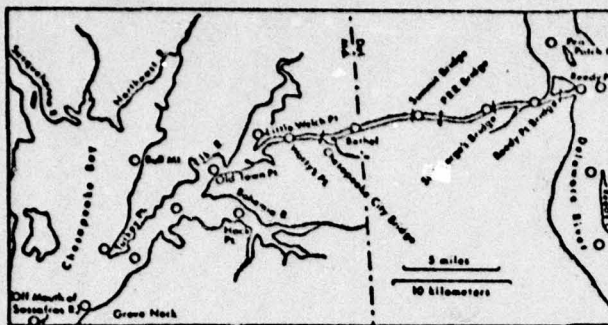


Fig 2(23) Blueback herring  
1971

C&D Canal Area

○ Station

● Occurrence

AD-A073 695

MARYLAND UNIV SOLOMONS NATURAL RESOURCES INST

F/G 8/8

HYDROGRAPHIC AND ECOLOGICAL EFFECTS OF ENLARGEMENT OF THE CHESA--ETC(U)

SEP 73 D E RITCHIE, T S KOO

DACW61-71-C-0062

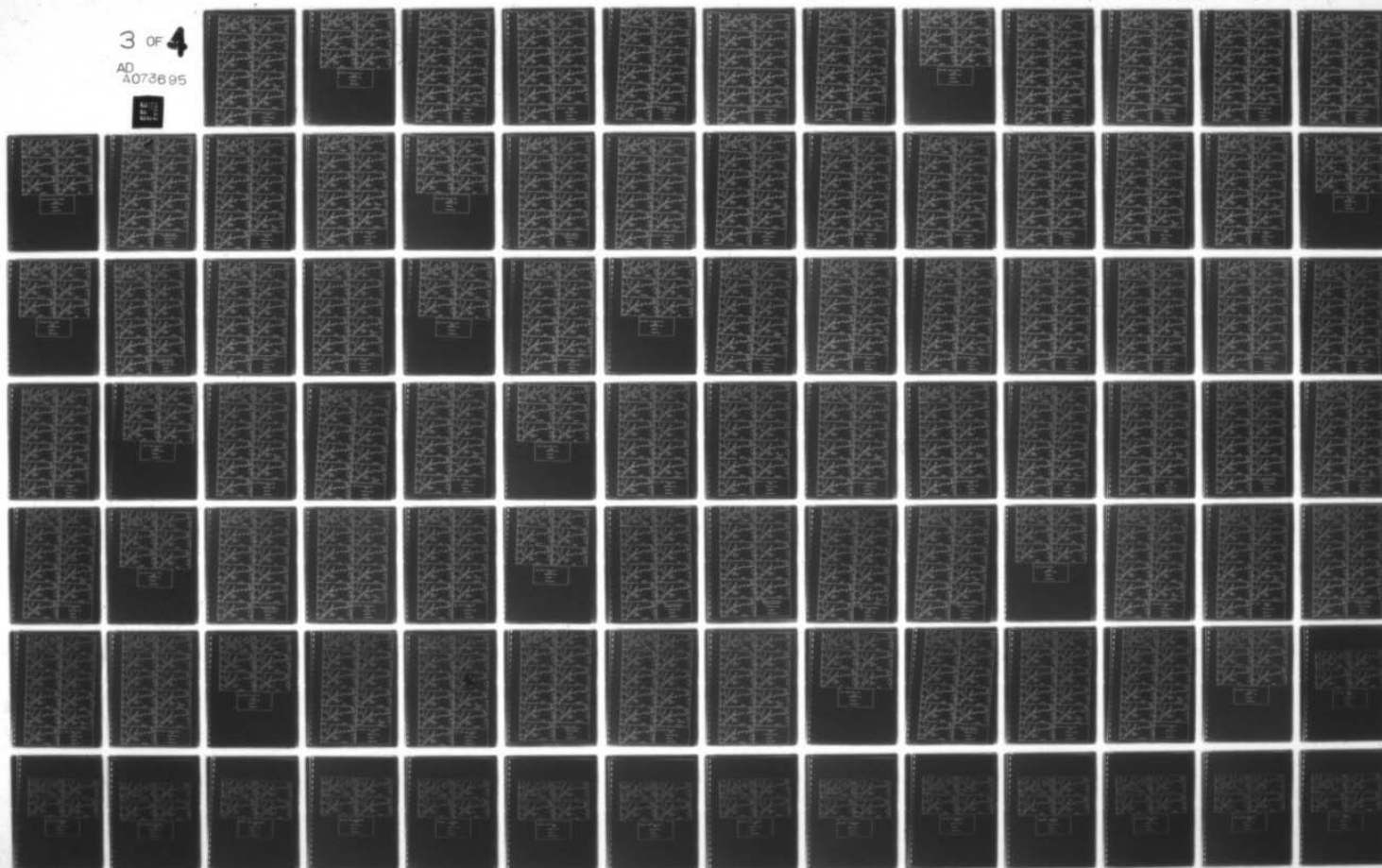
UNCLASSIFIED

NRI-REF-74-71

NL

3 OF 4

AD  
A073695





3

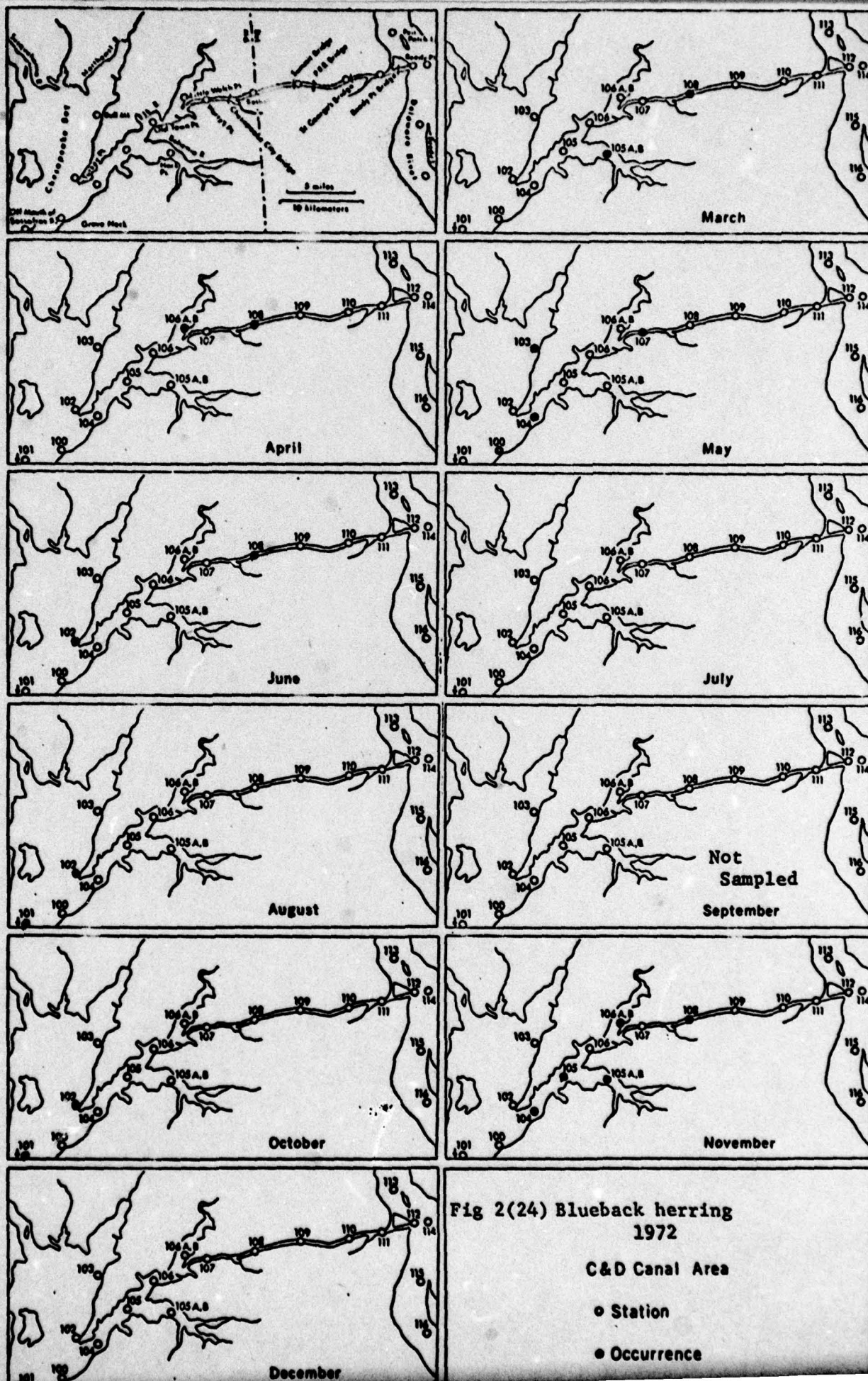
OF

4

AD

A073695







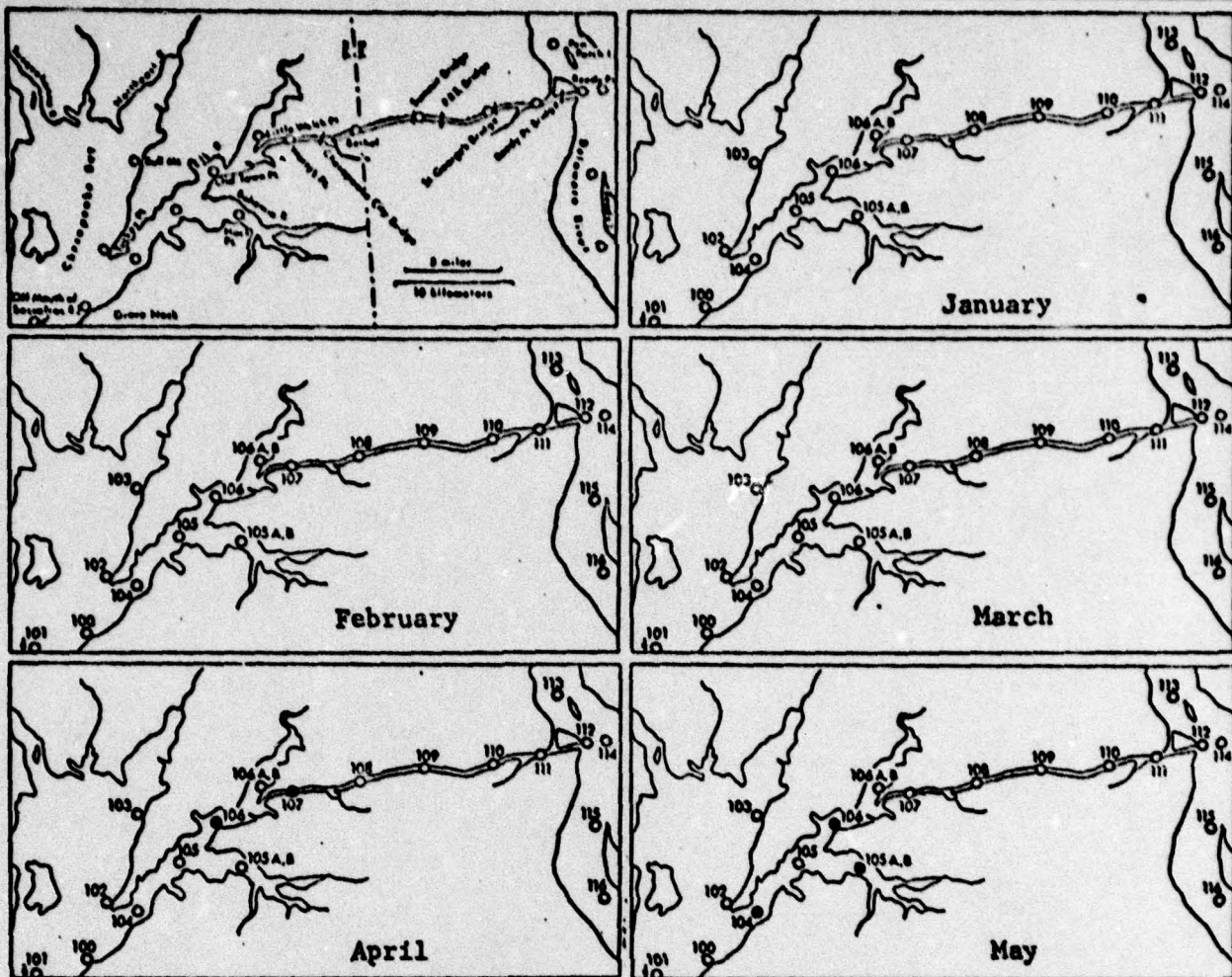
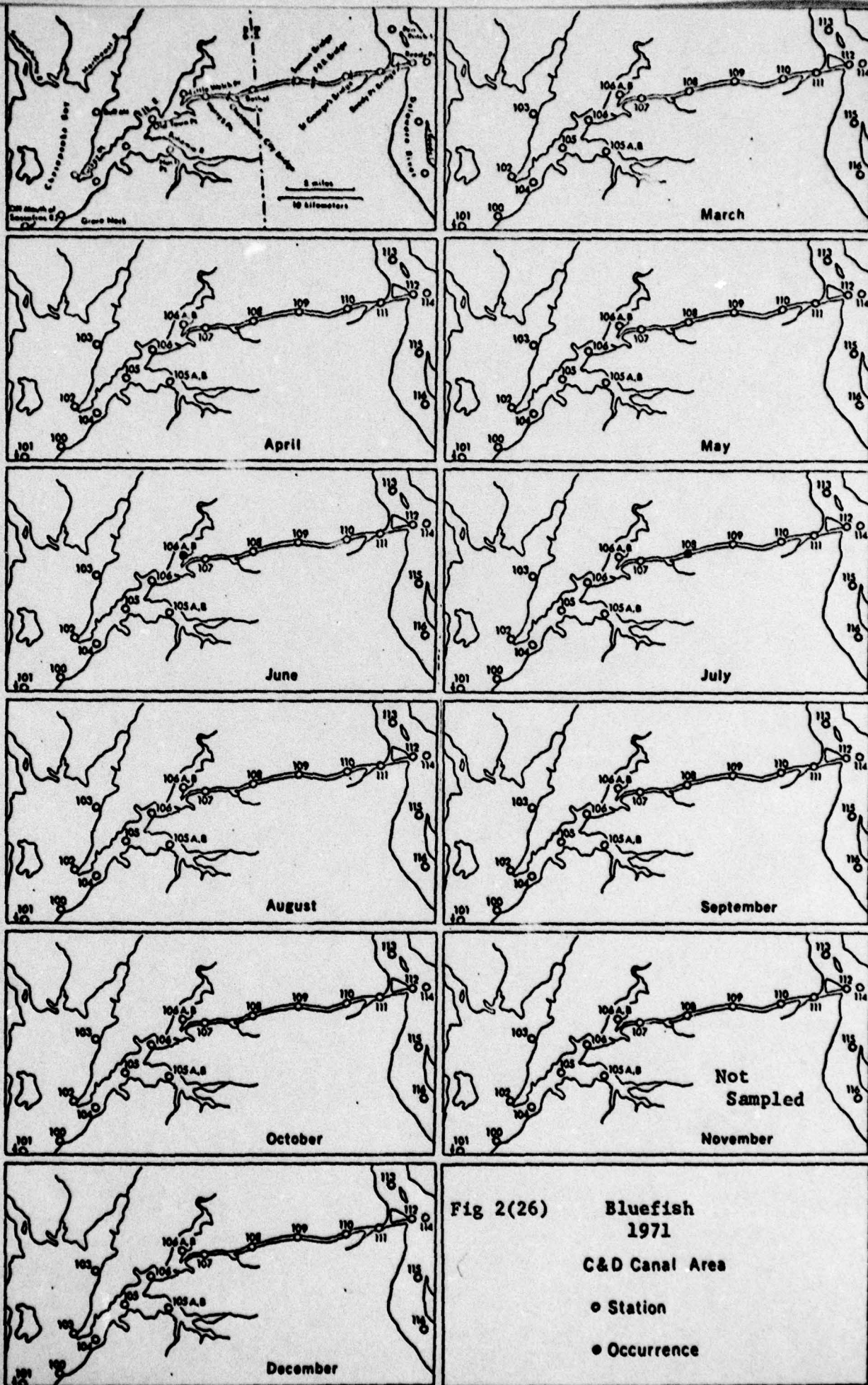
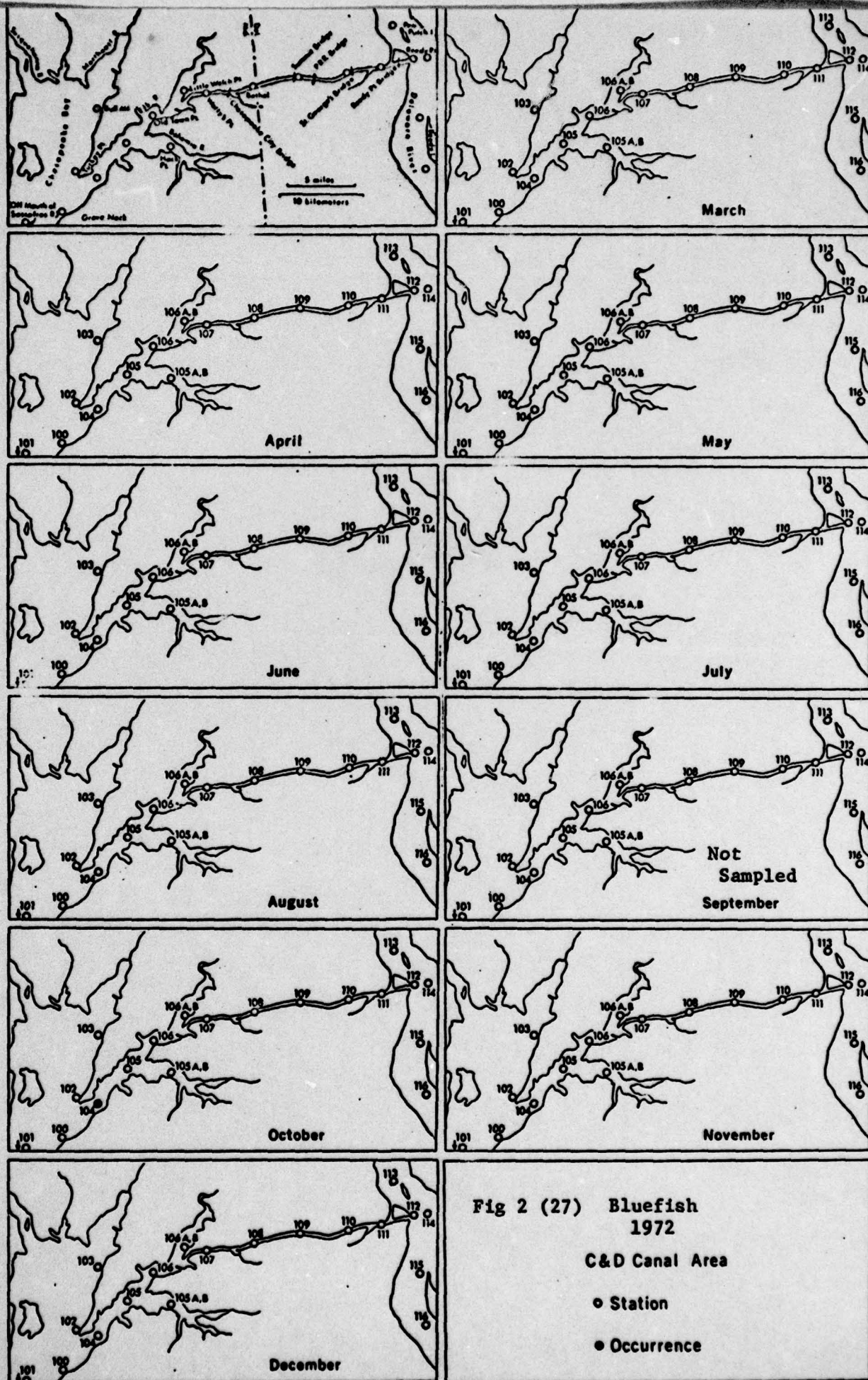


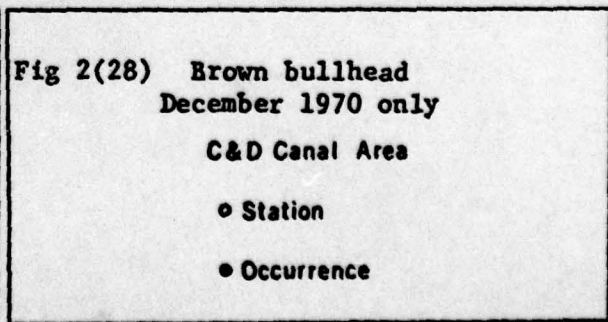
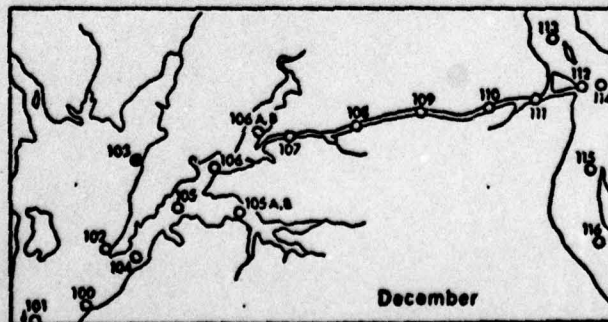
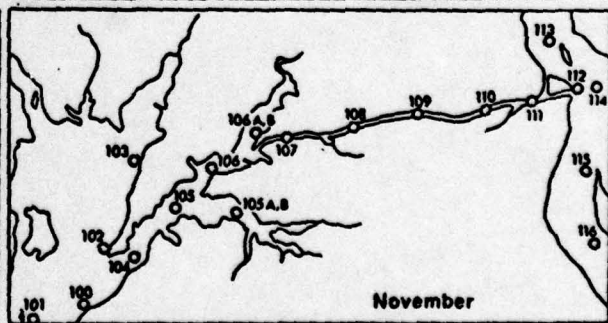
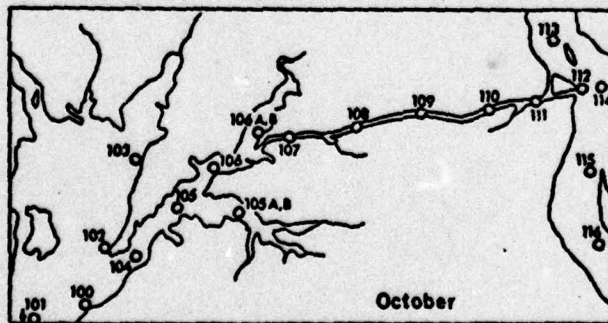
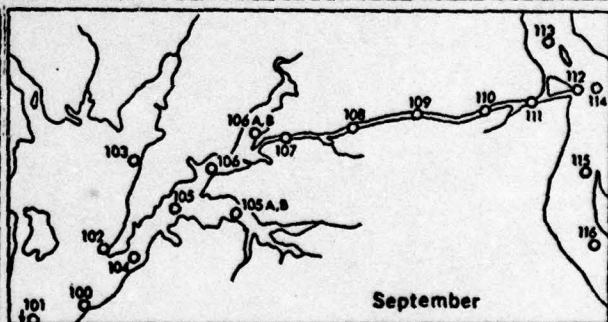
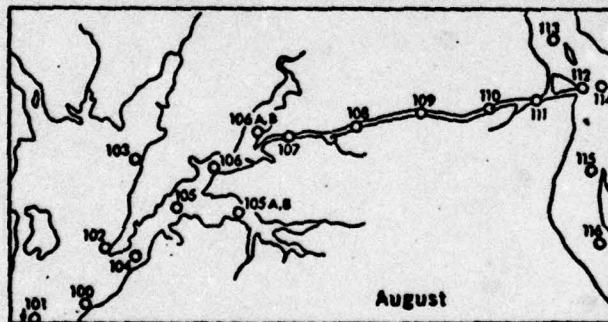
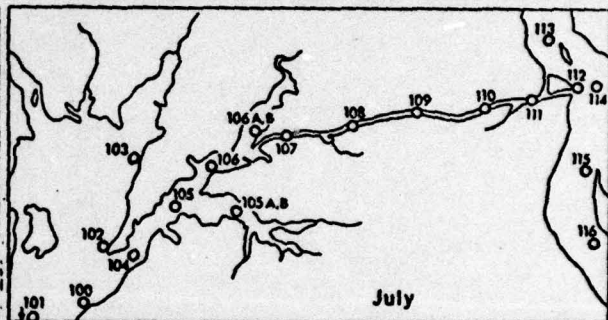
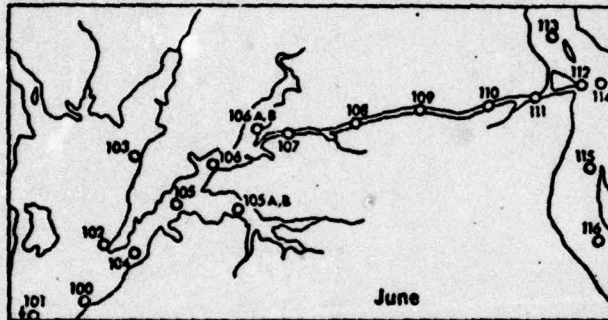
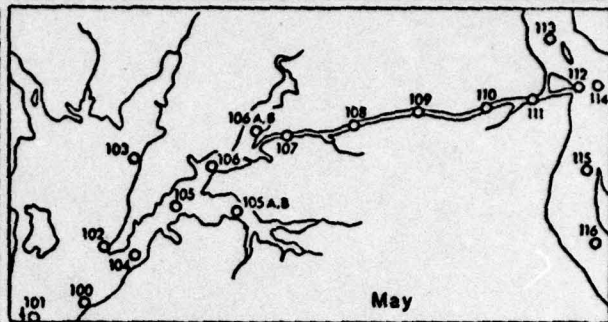
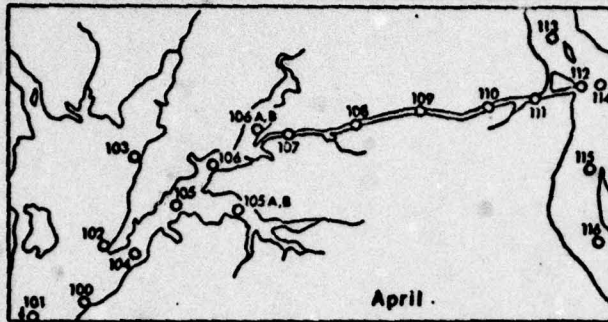
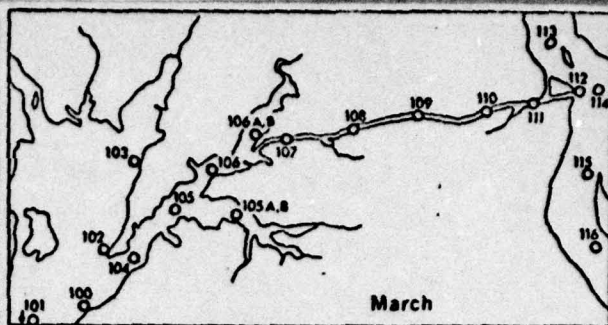
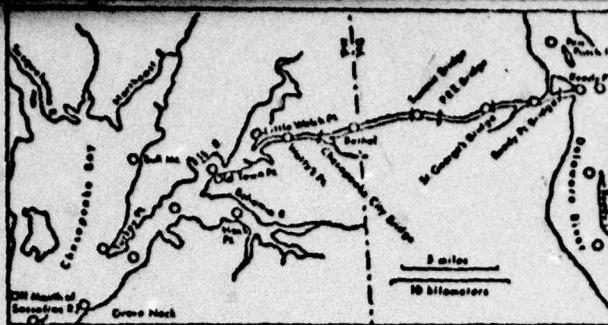
Fig 2(25) Blueback herring  
1973  
C&D Canal Area

- Station
- Occurrence

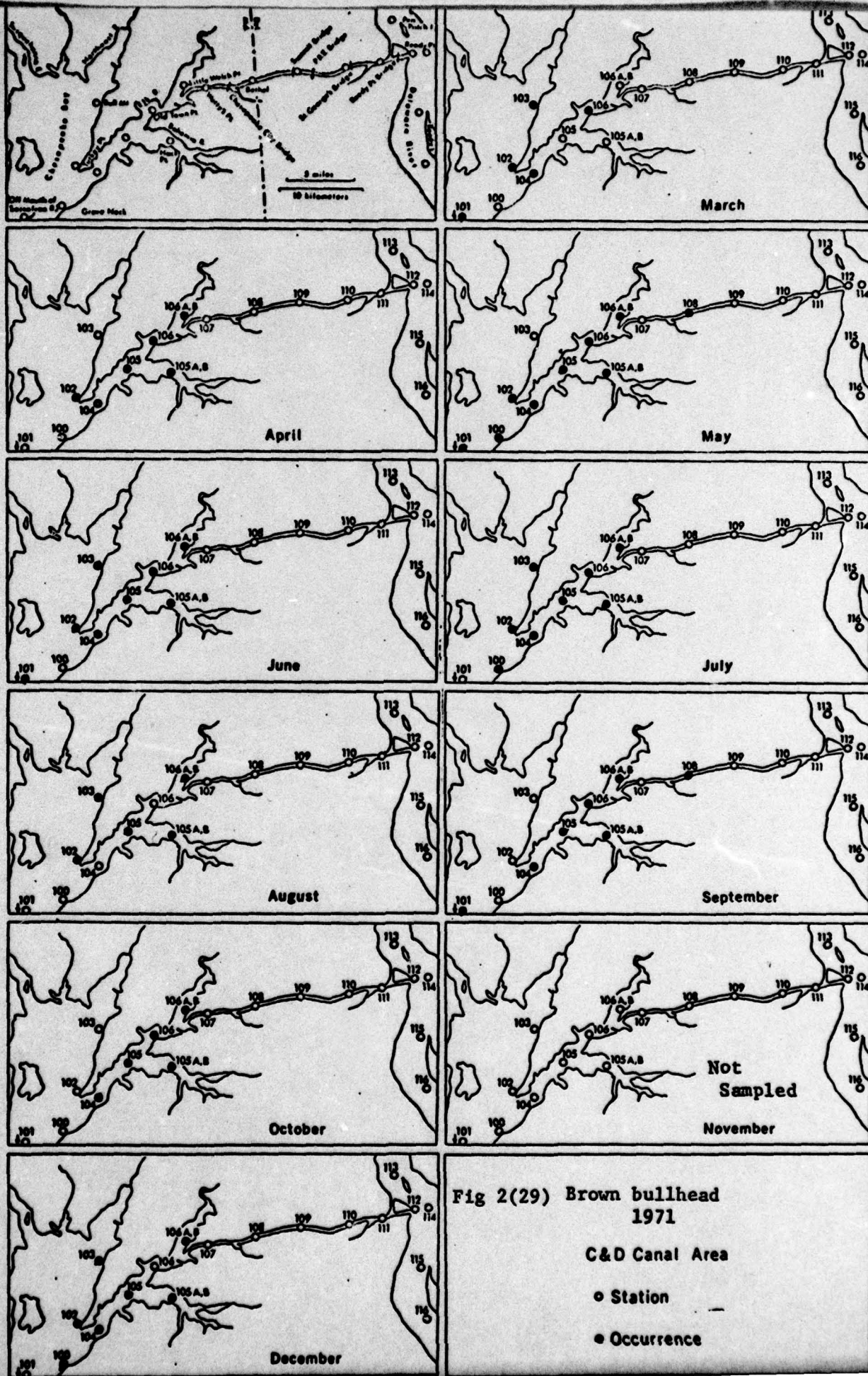


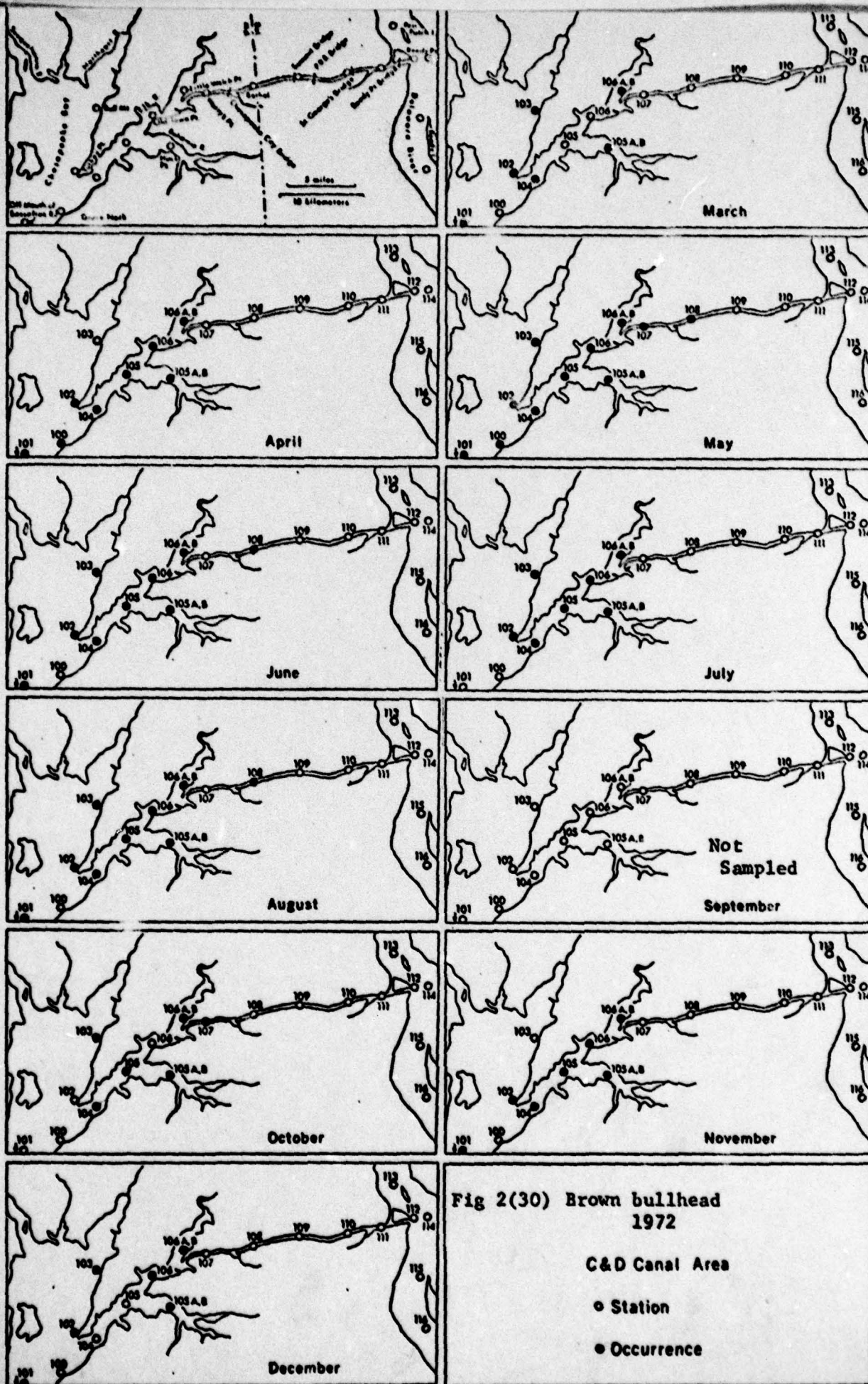






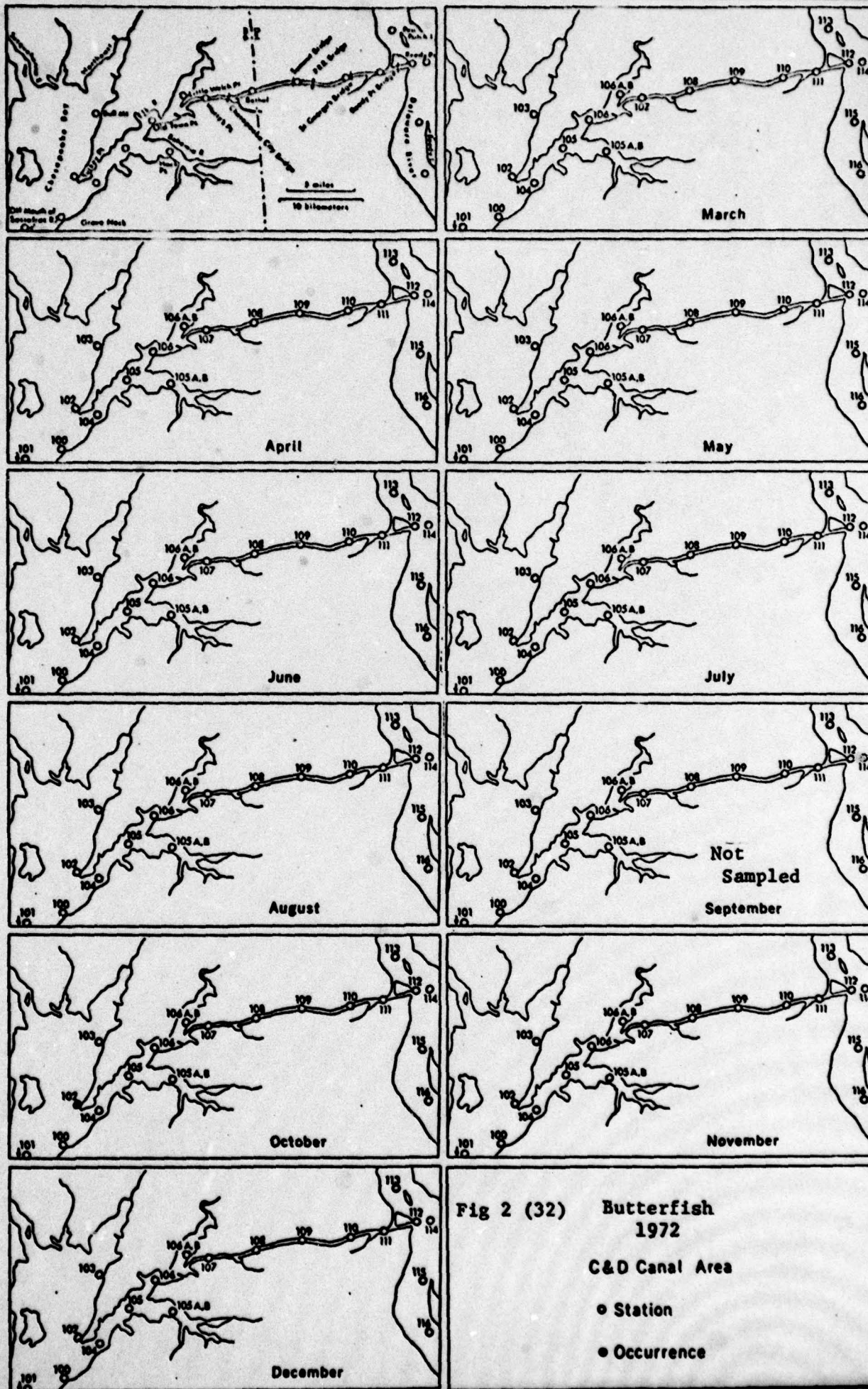














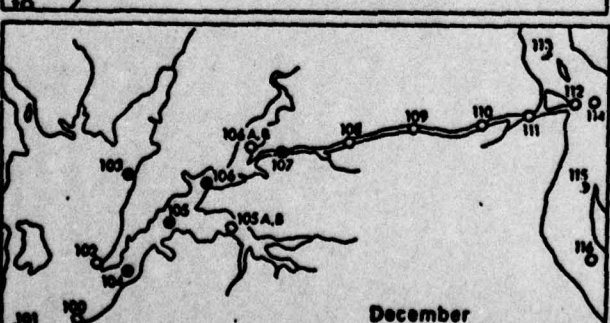
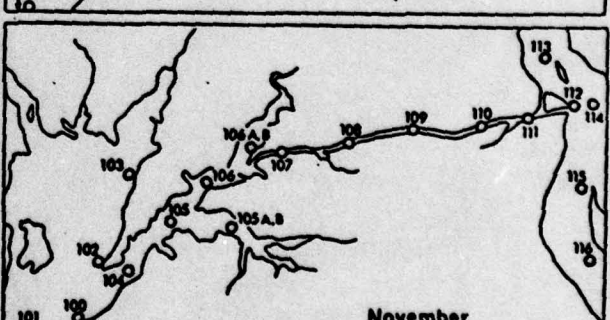
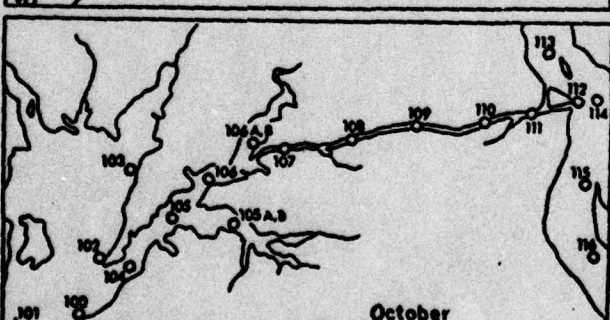
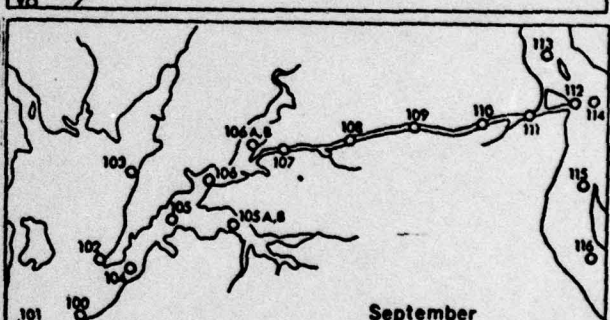
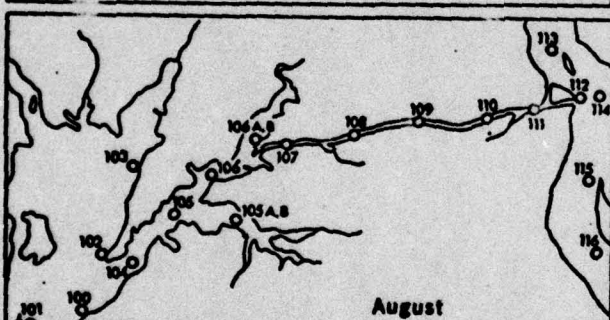
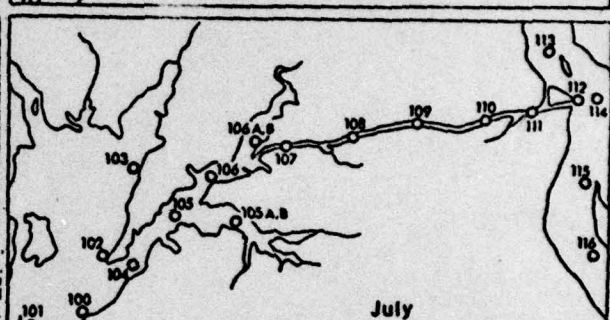
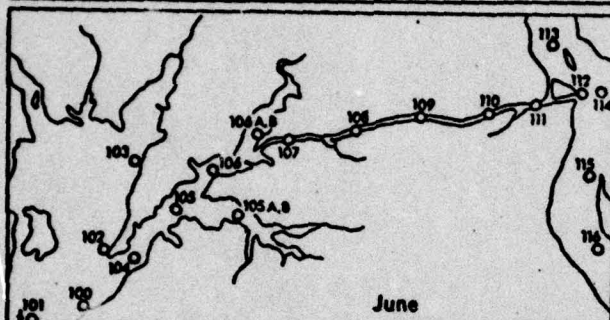
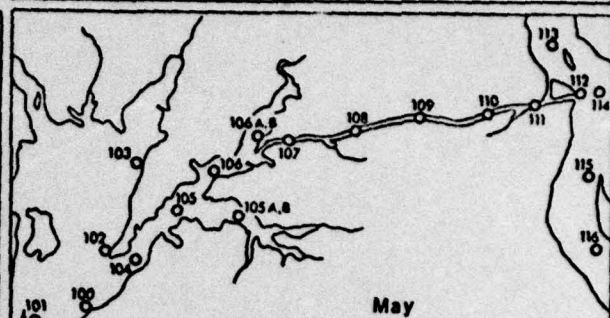
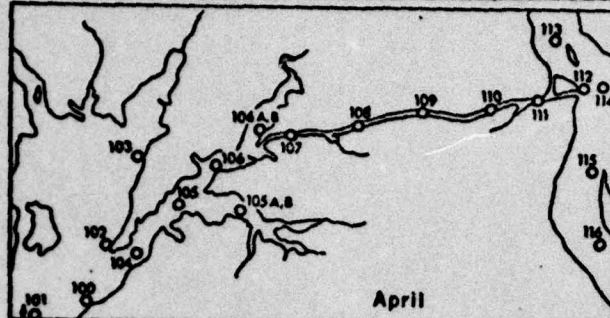
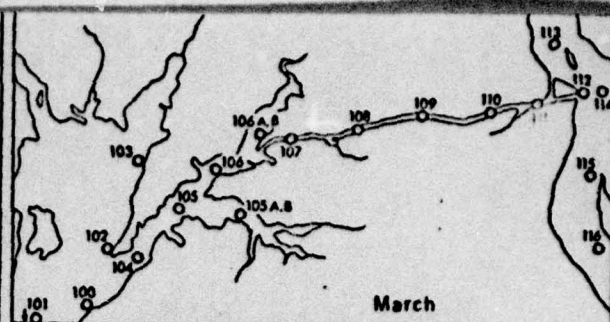
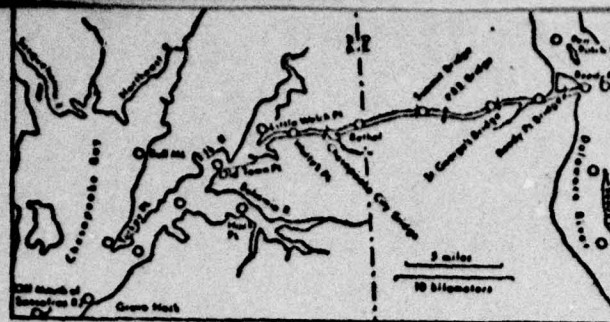
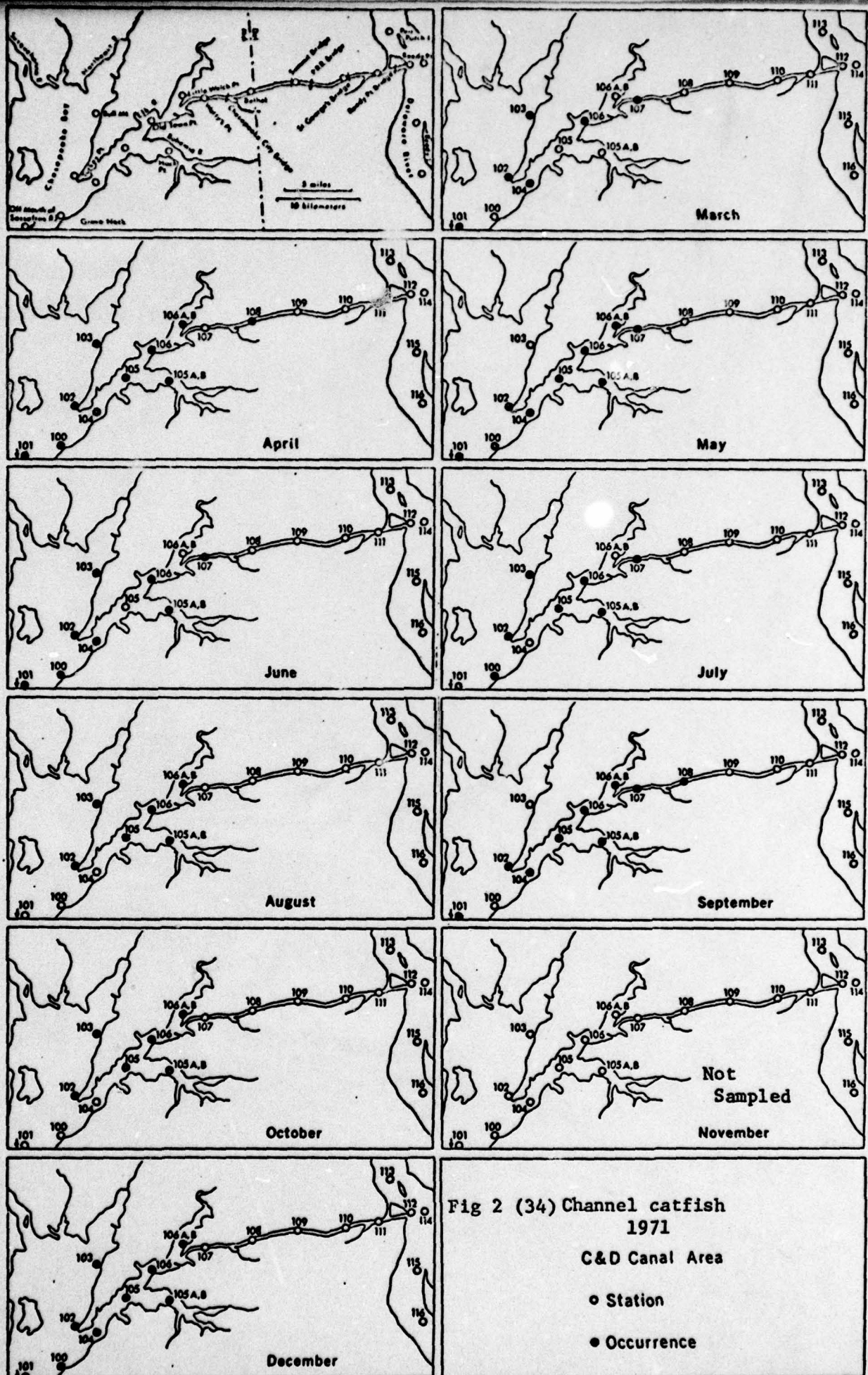


Fig 2(33) Channel catfish  
December 1970 only

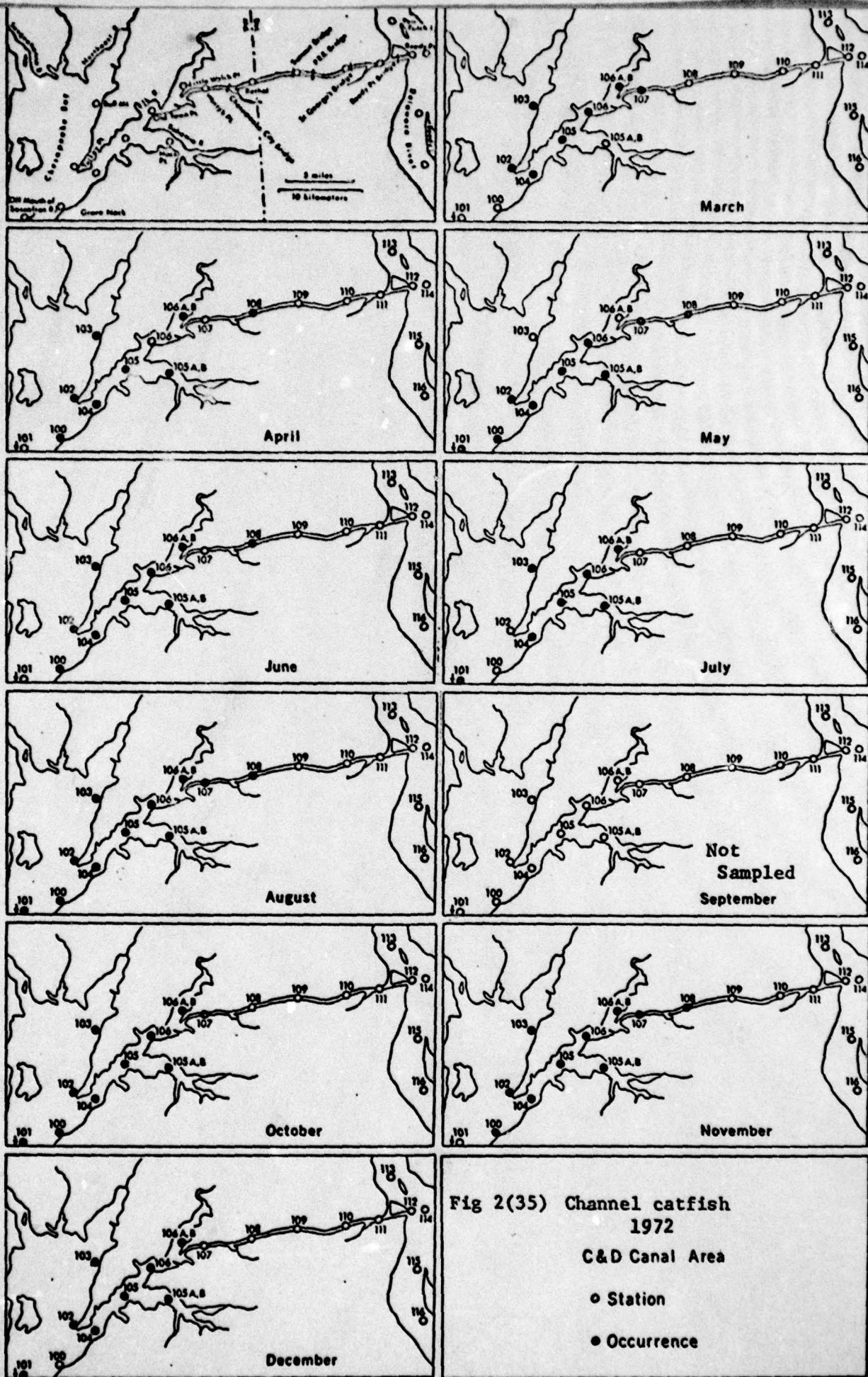
C&D Canal Area

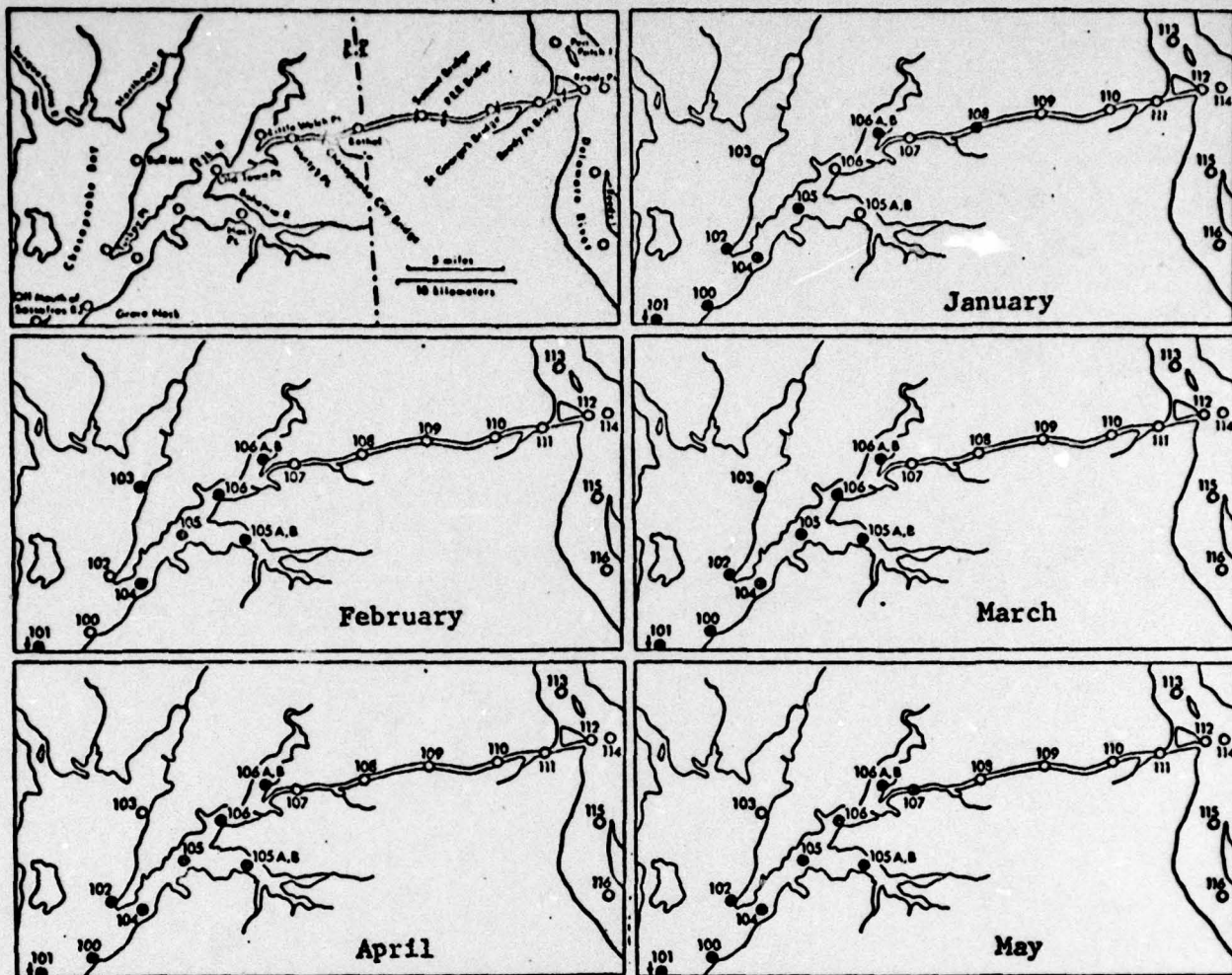
○ Station

● Occurrence

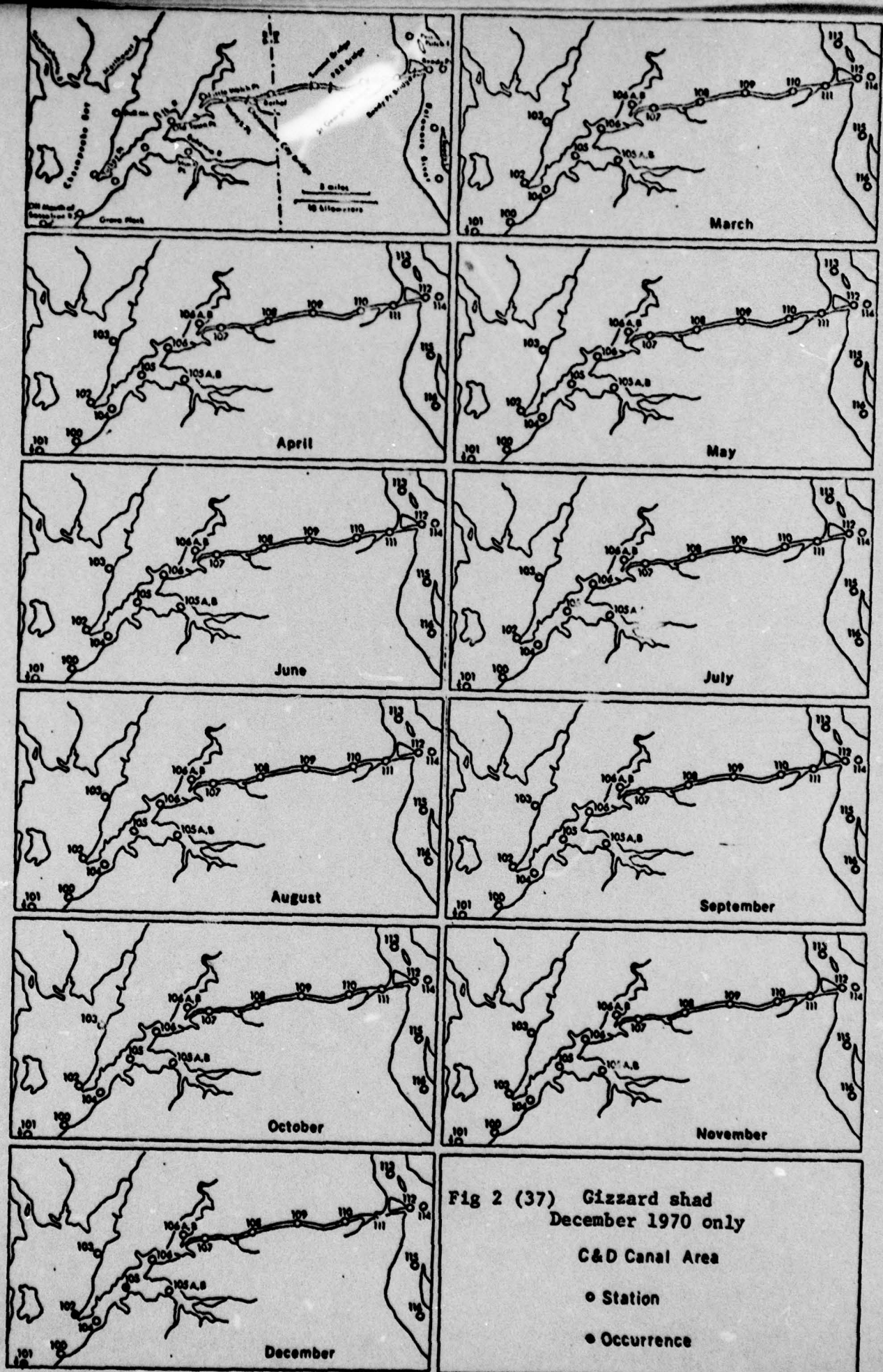


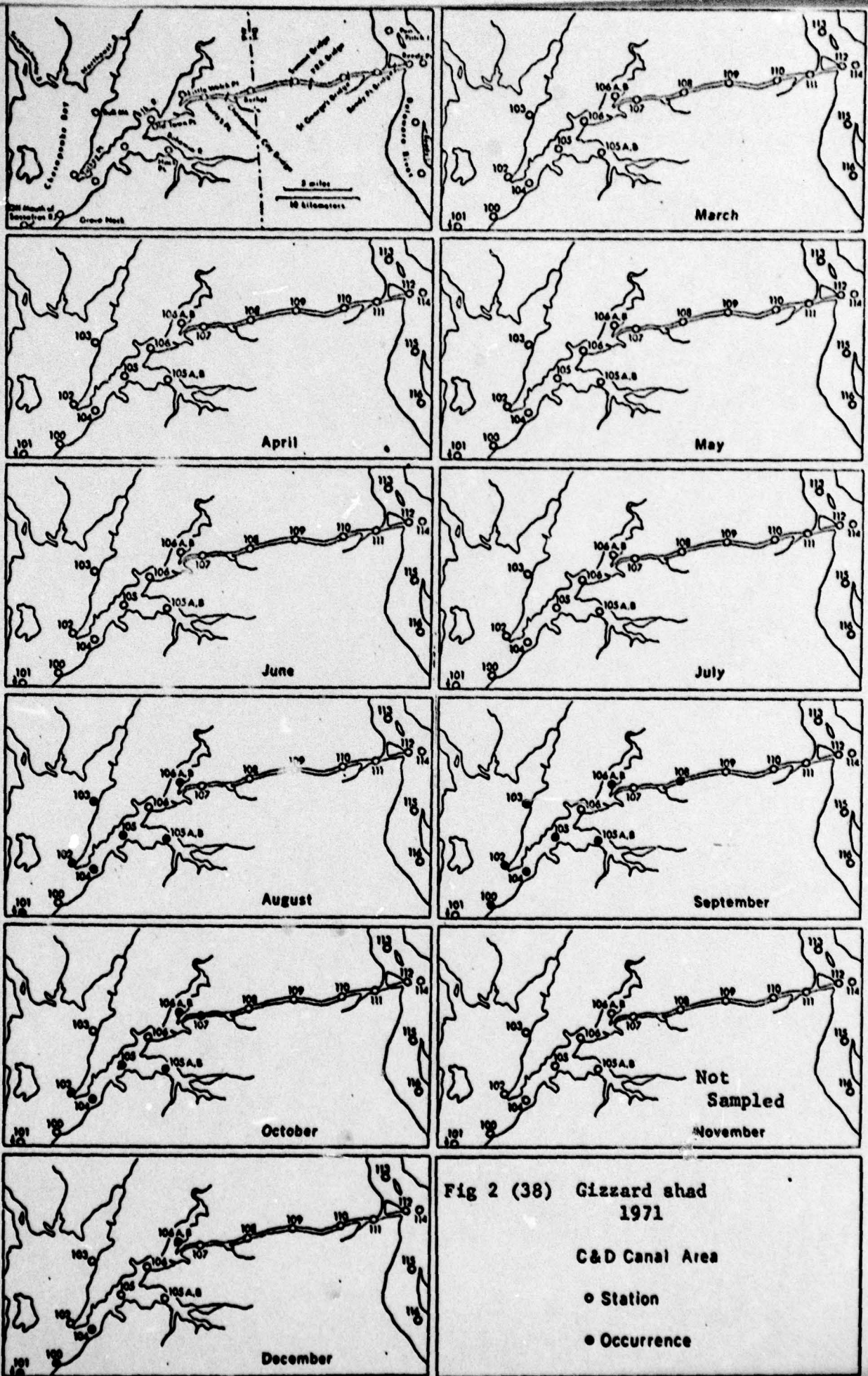




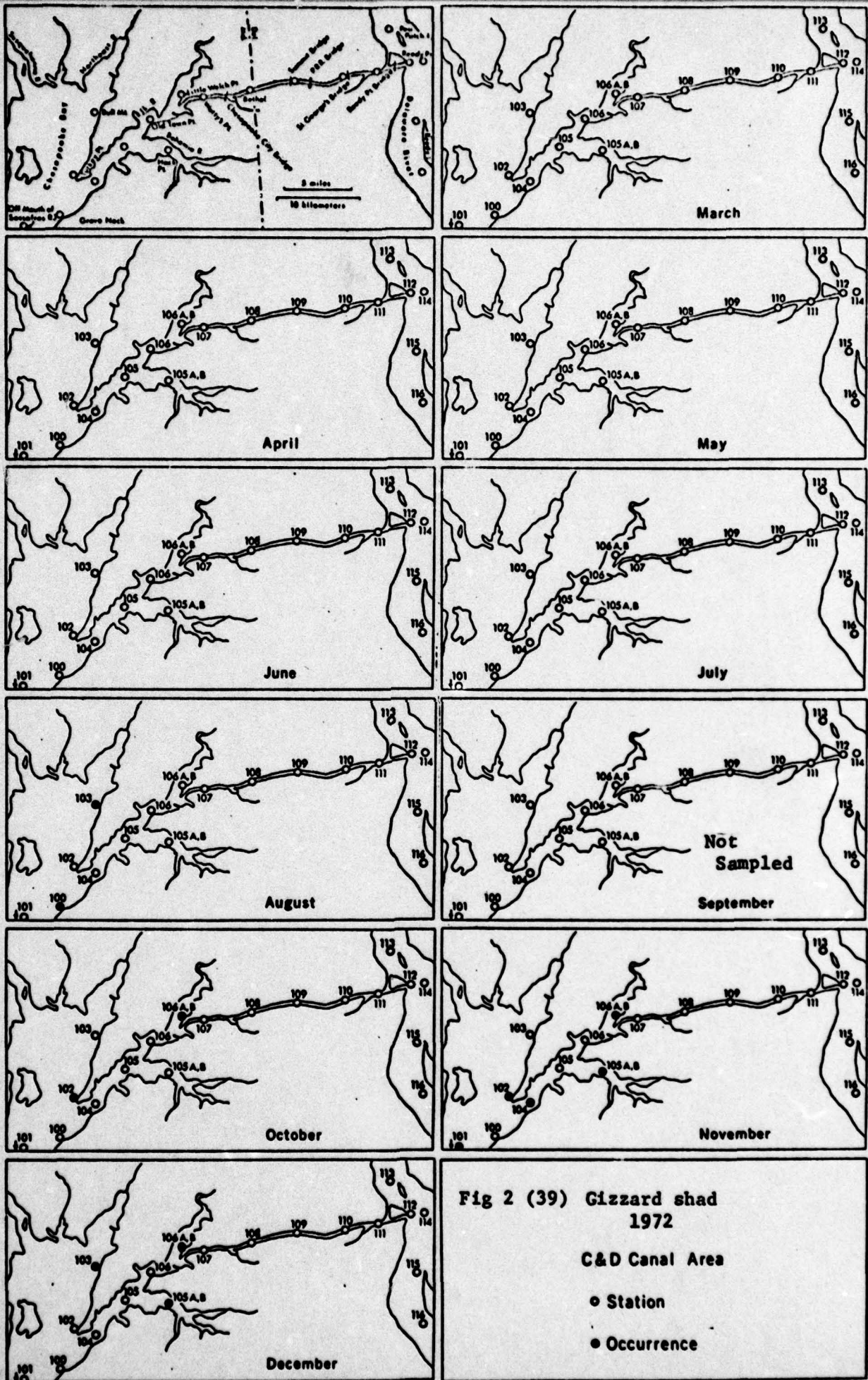


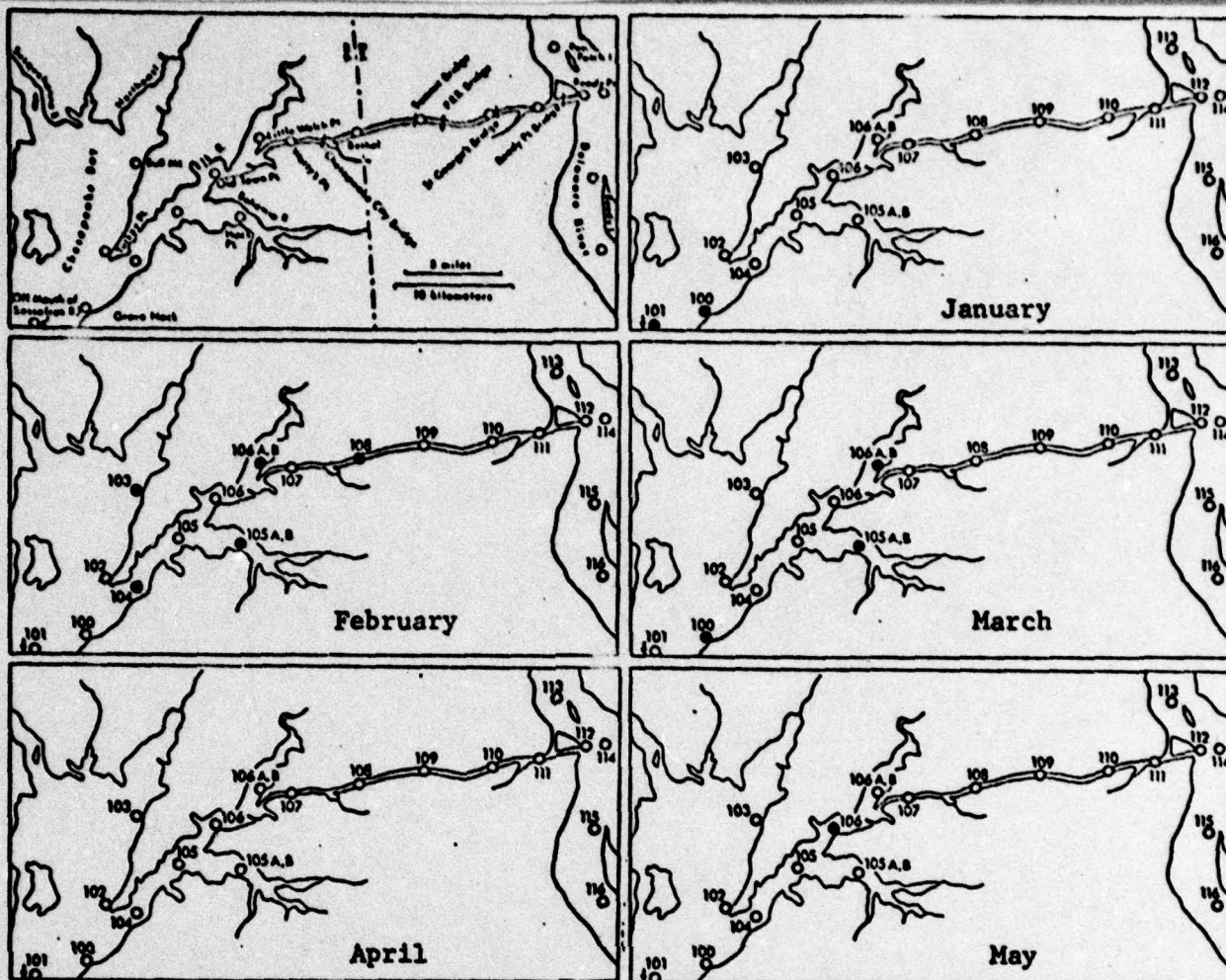










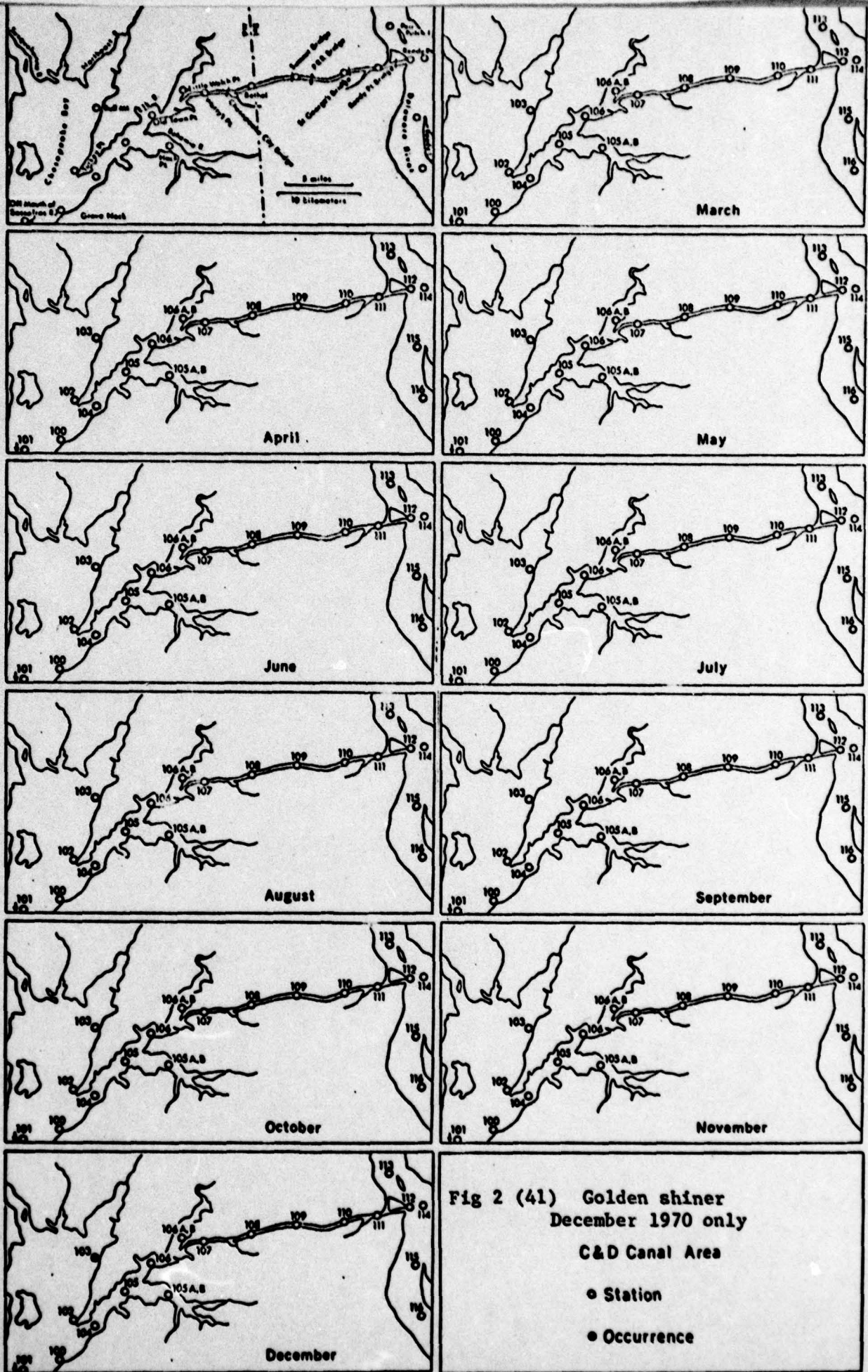


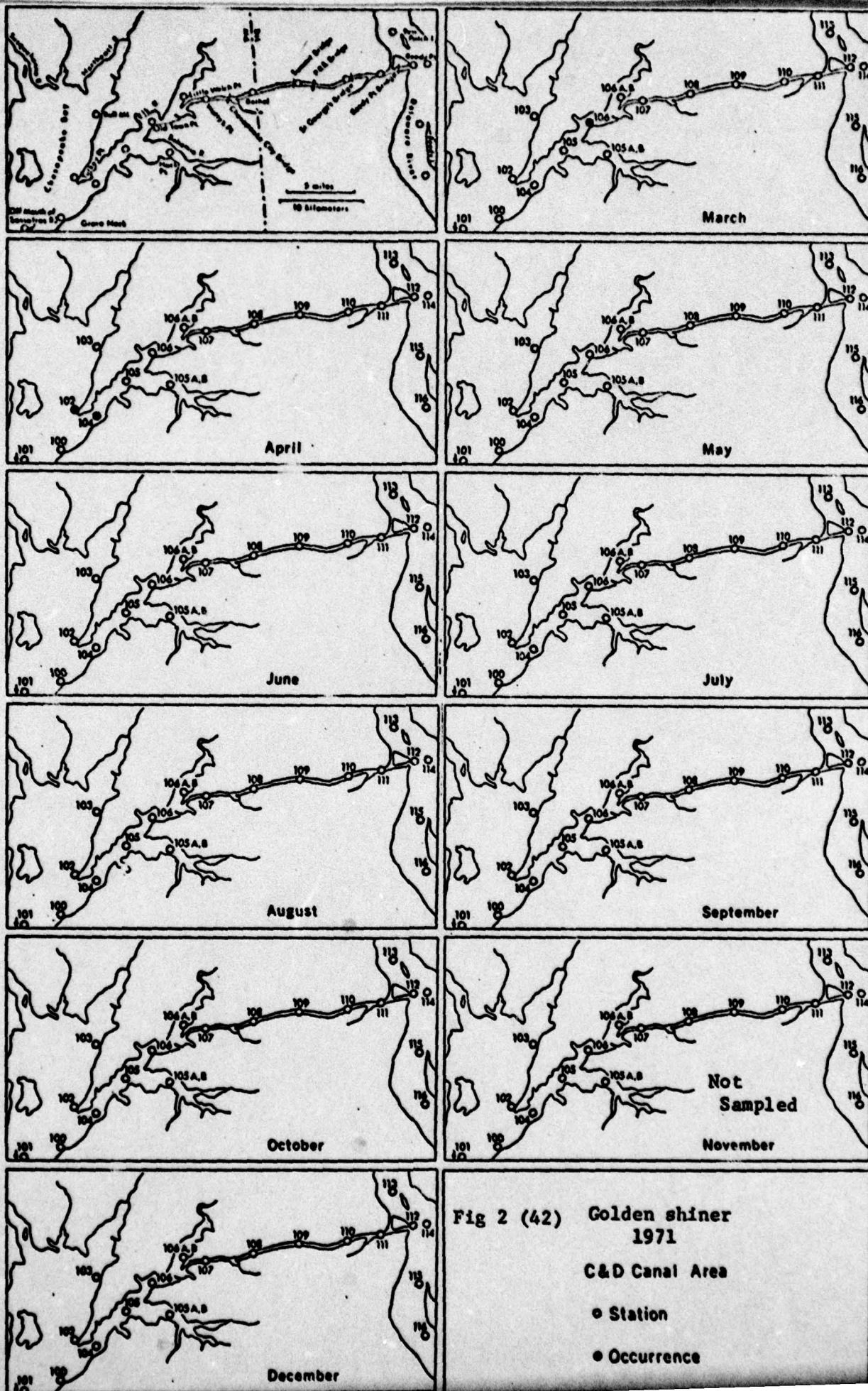
**Fig 2 (40). Gizzard shad  
1973  
C&D Canal Area**

• **Station**

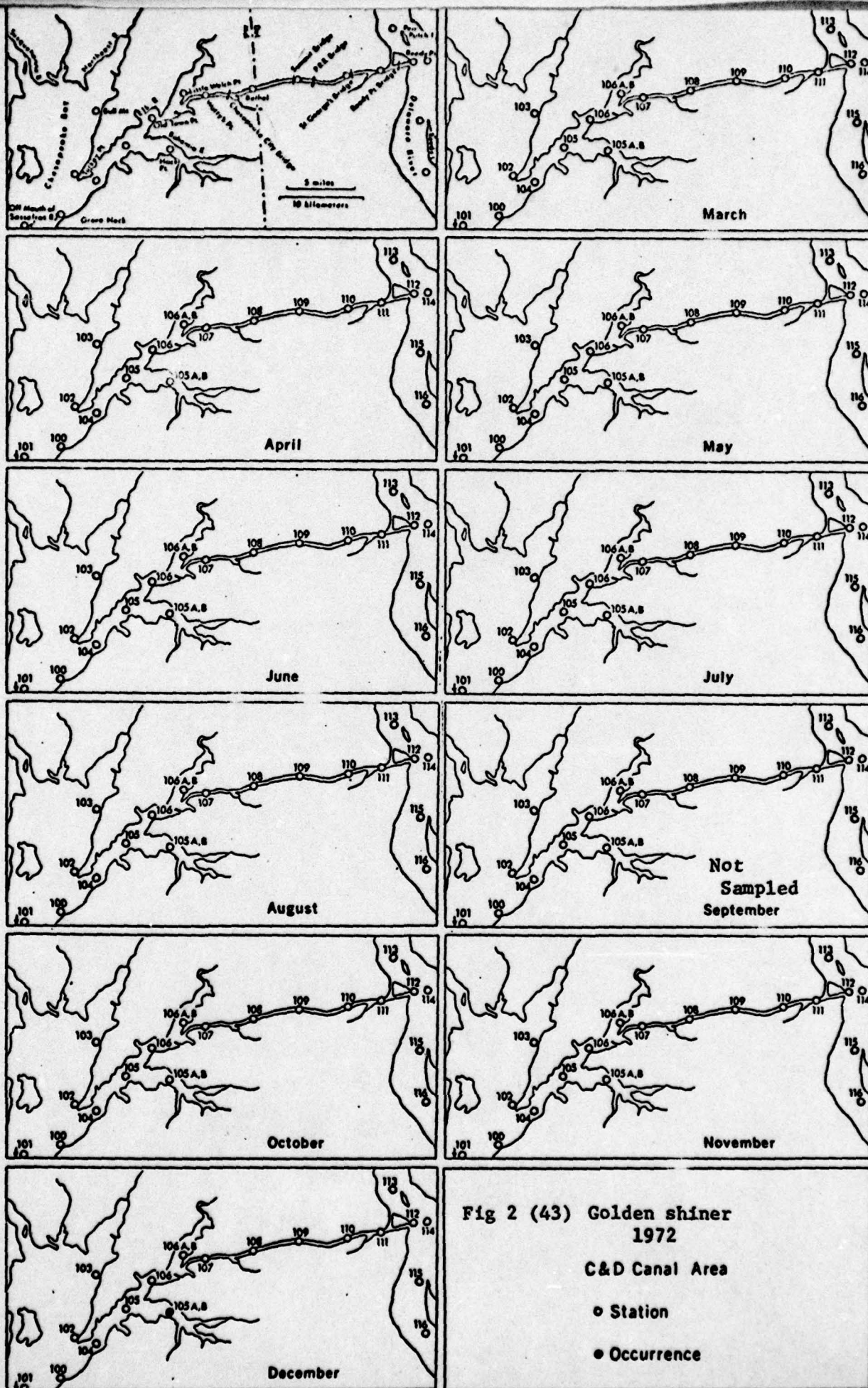
### ● Occurrence

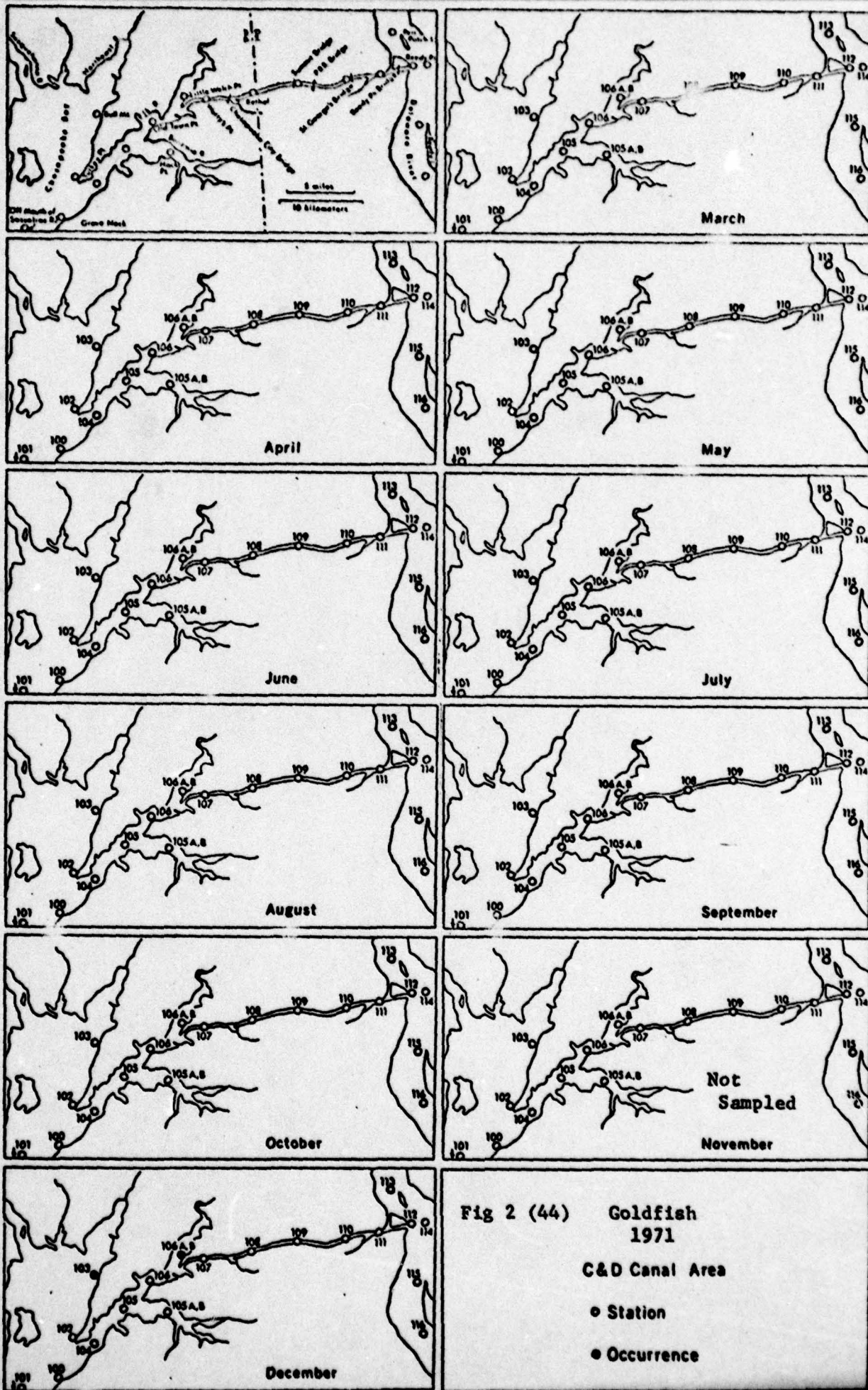




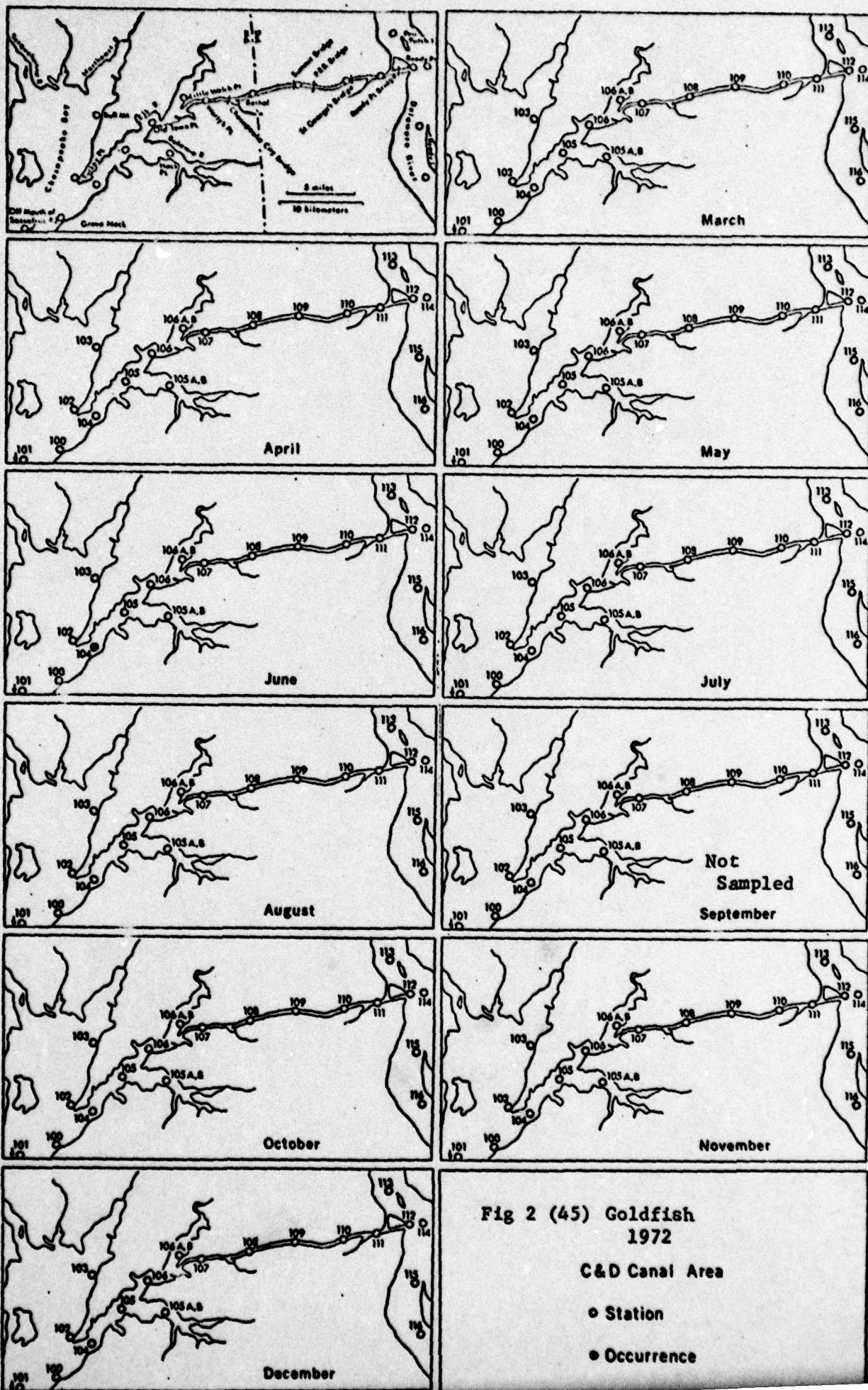


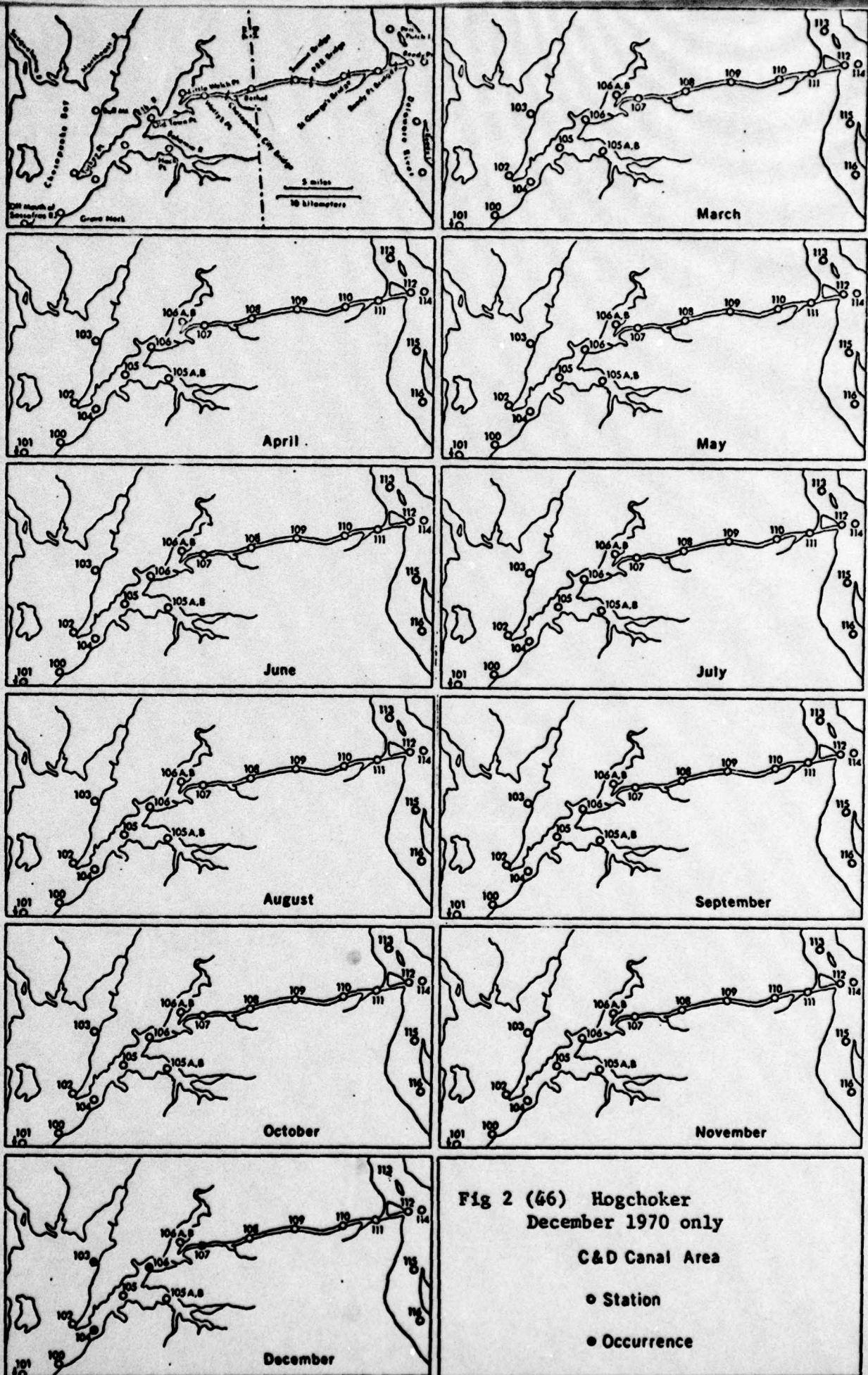




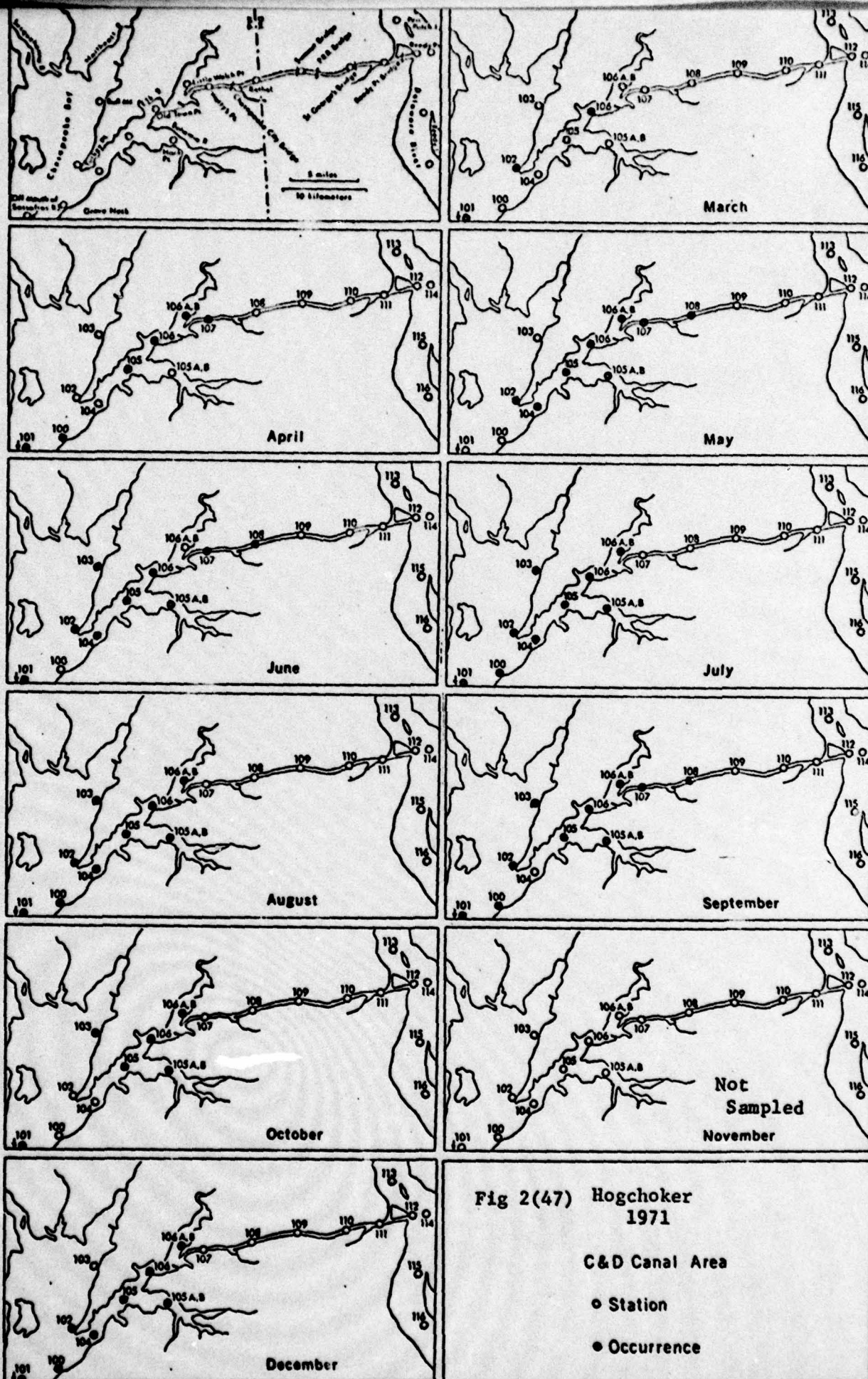


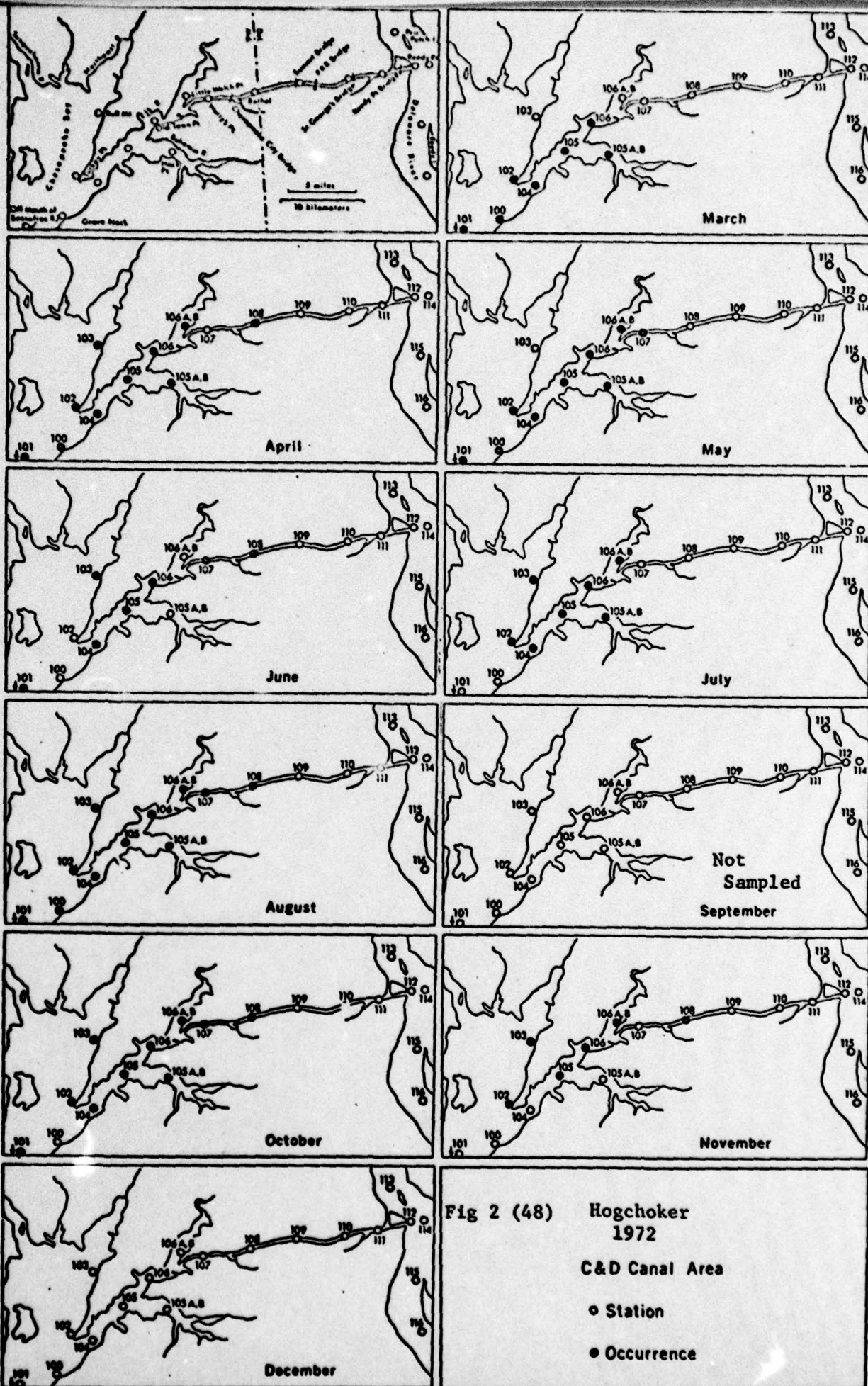




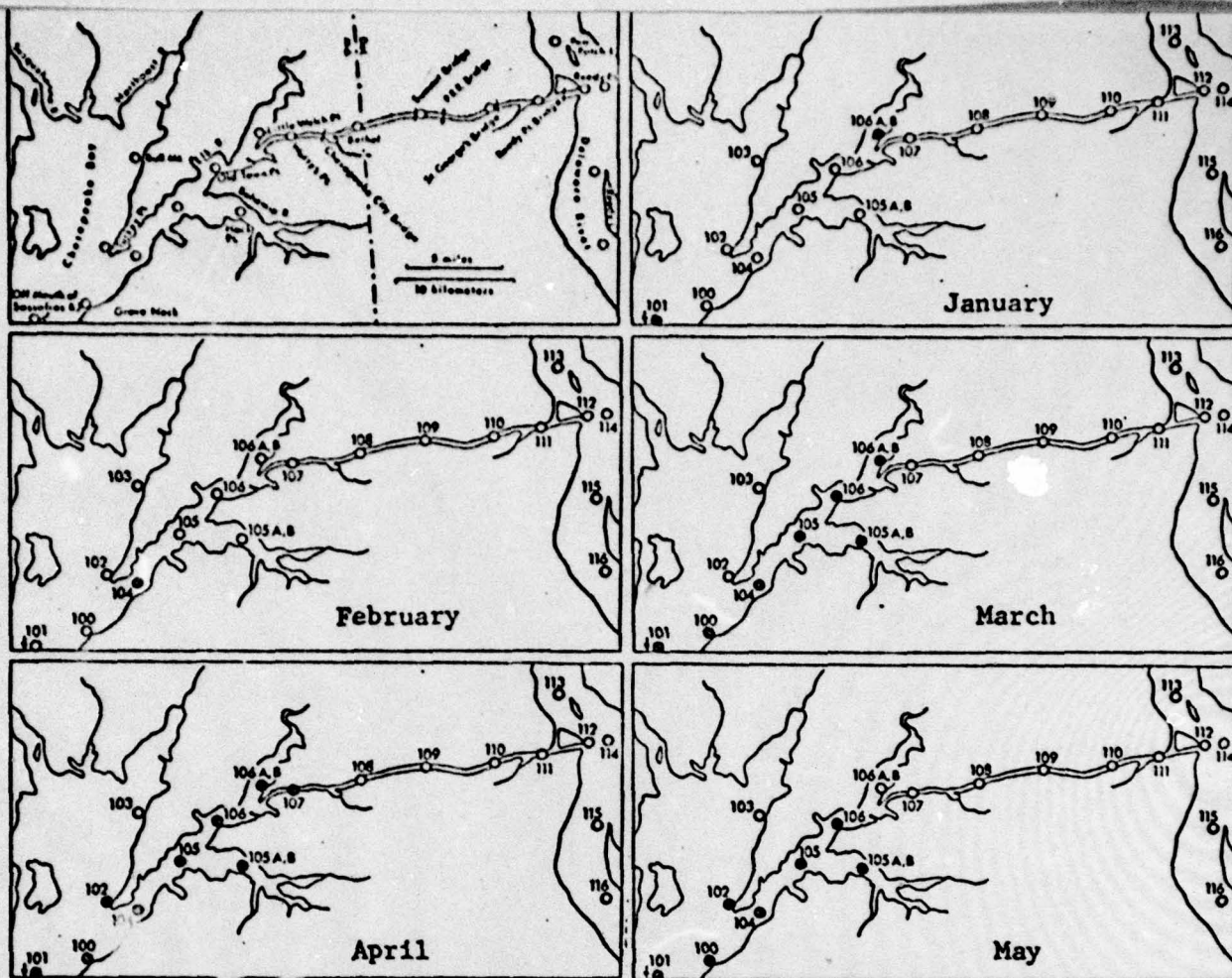












**Fig 2 (49) Hogchoker**  
**1973**  
**C&D Canal Area**

- Station
- Occurrence

### ● Occurrence

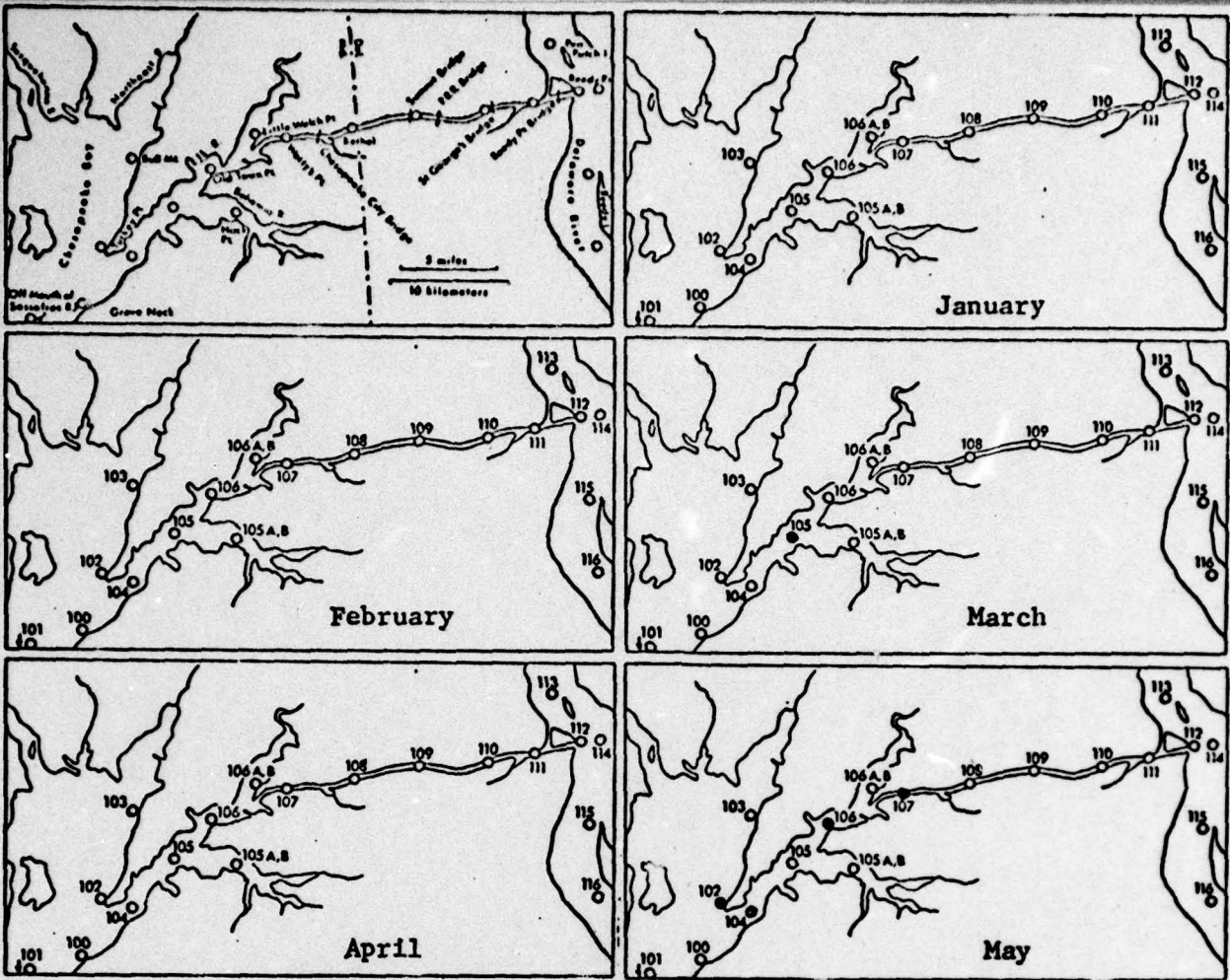
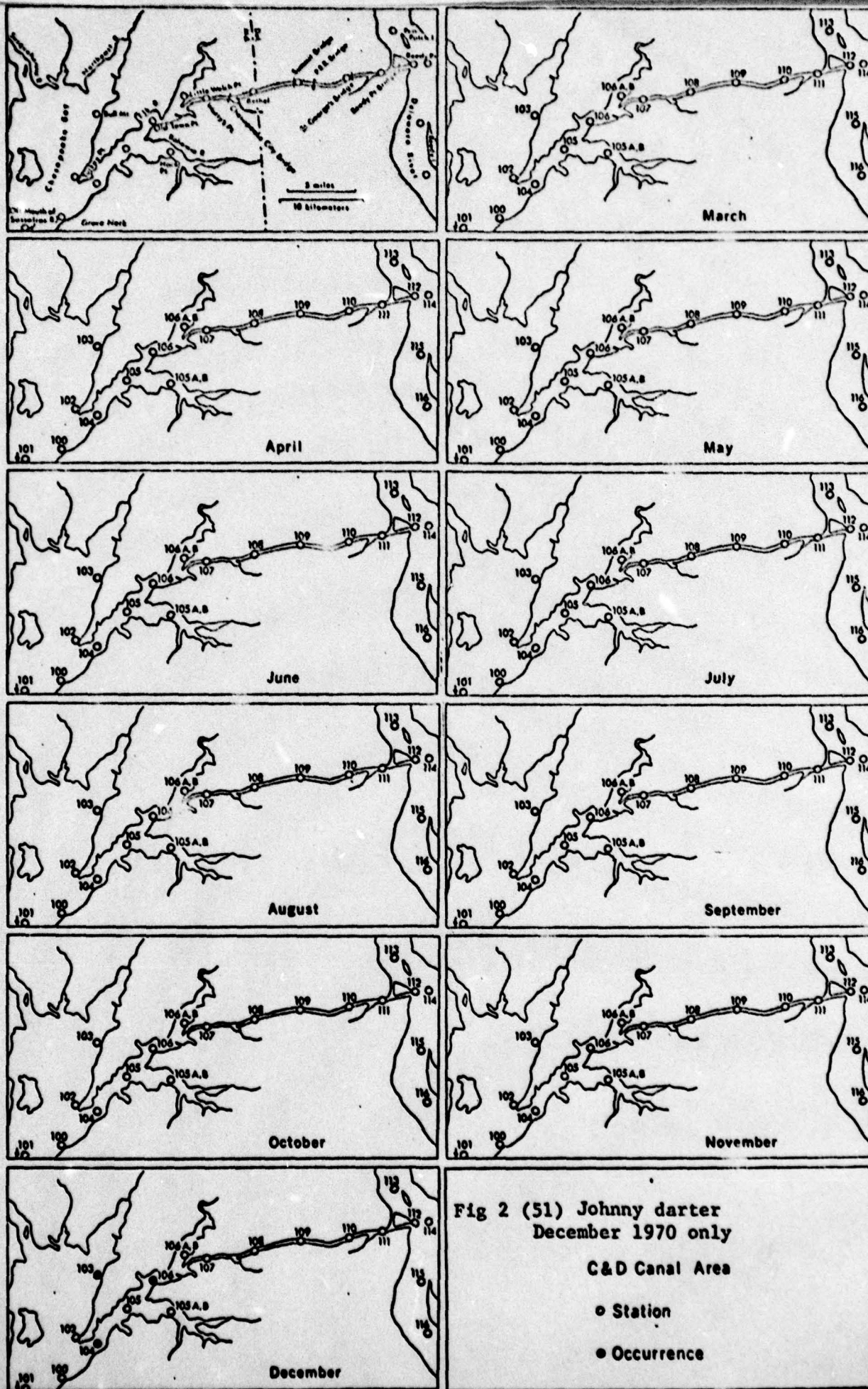
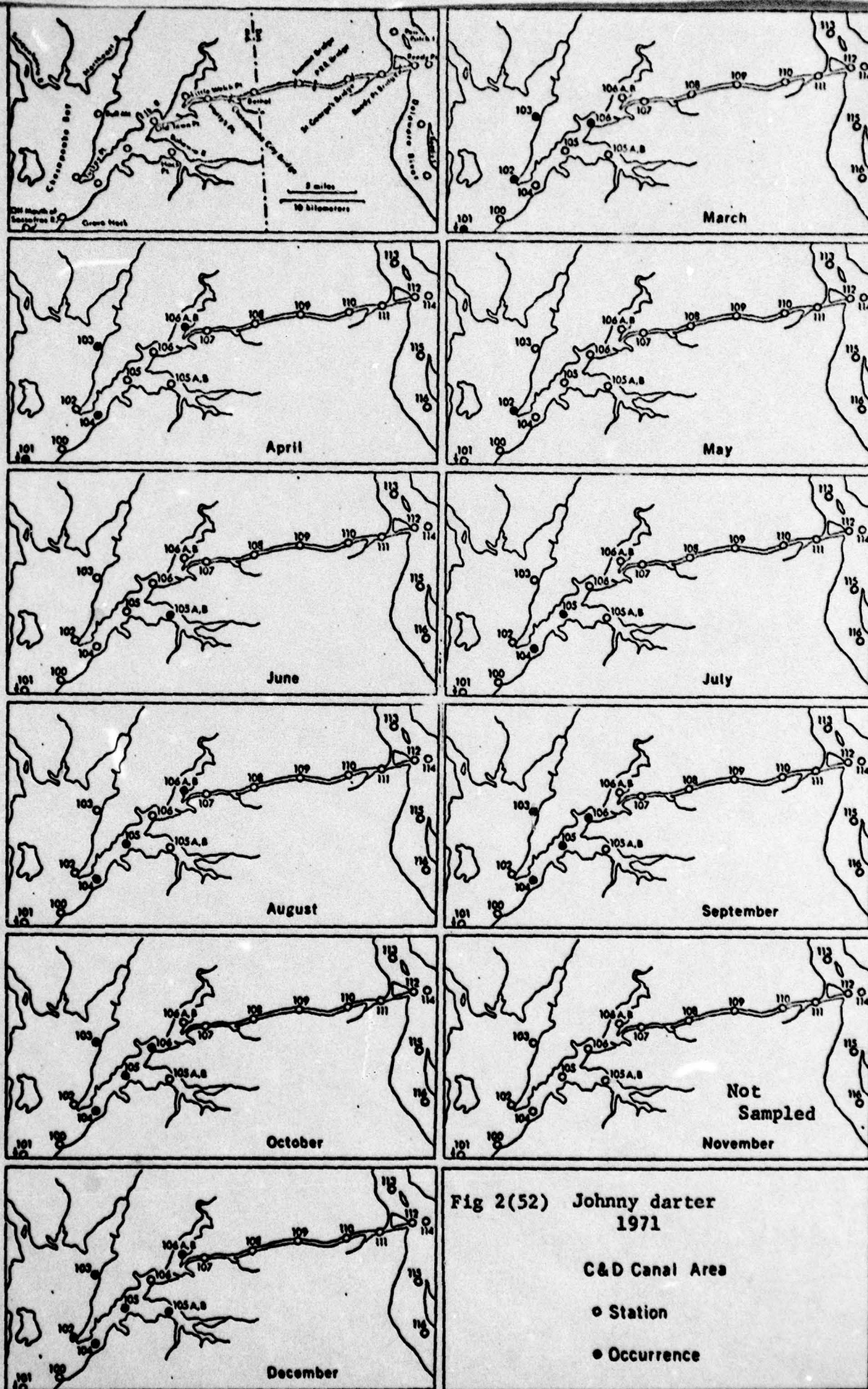


Fig 2(50). Hickory shad  
1973  
C&D Canal Area

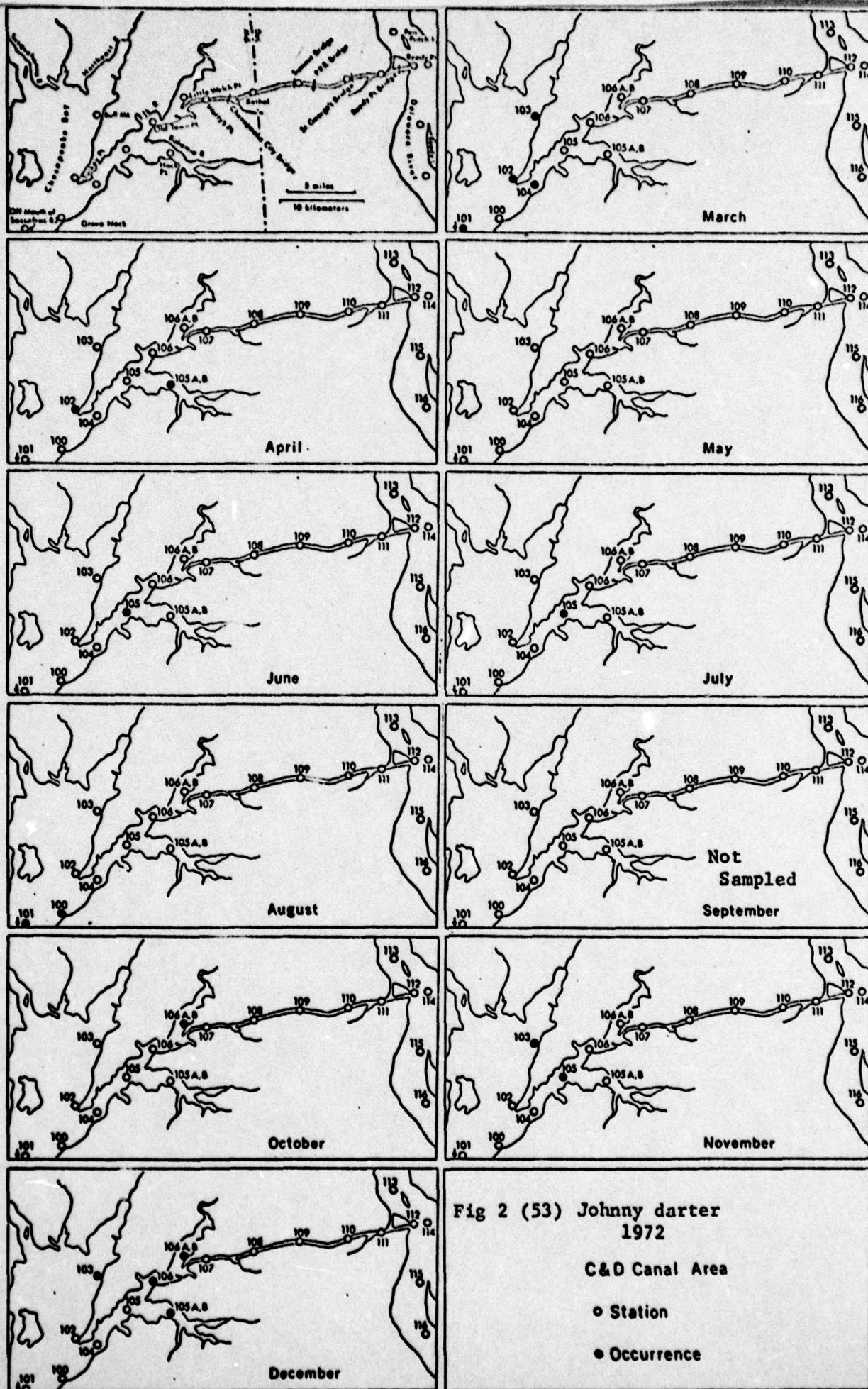
- Station
- Occurrence











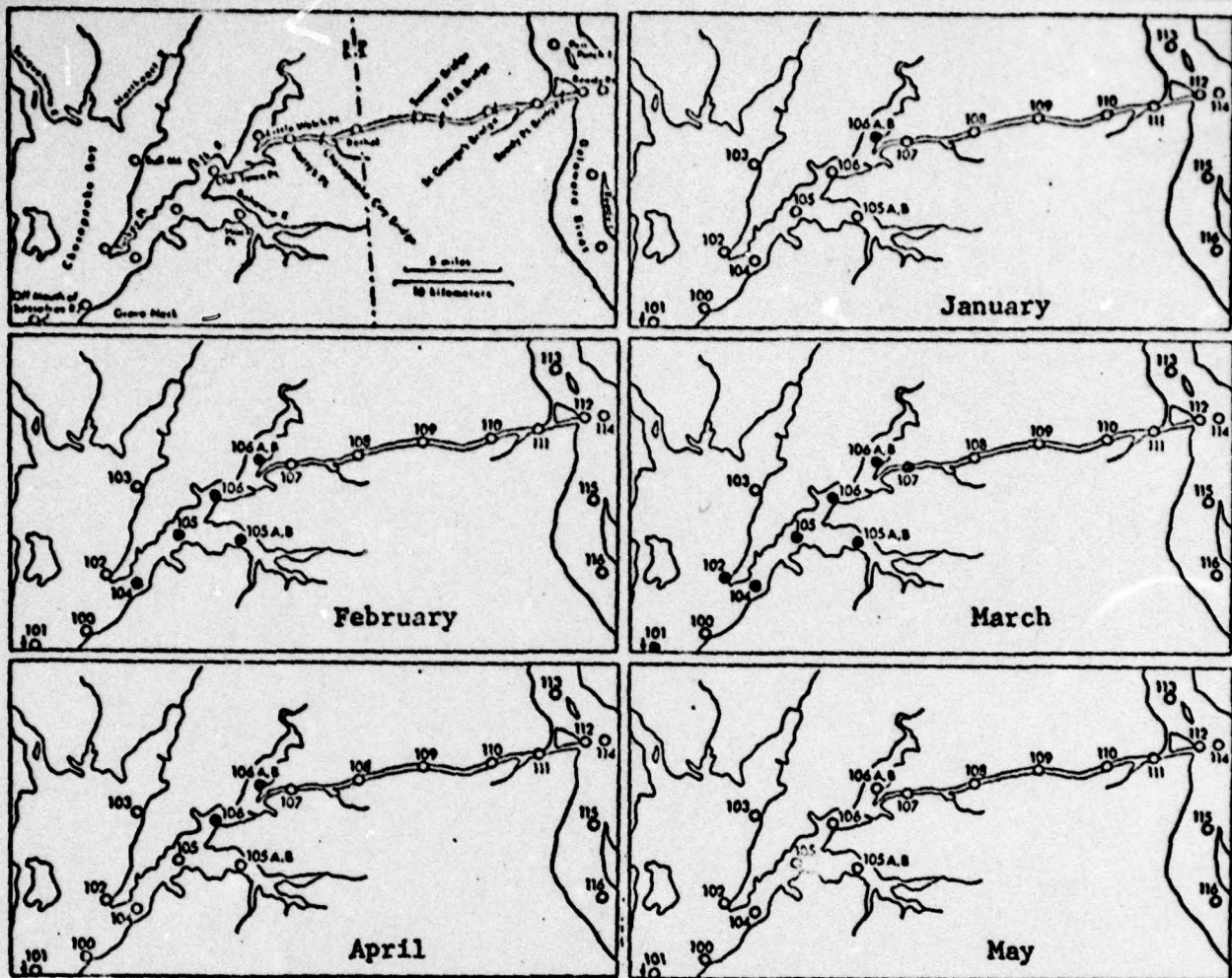
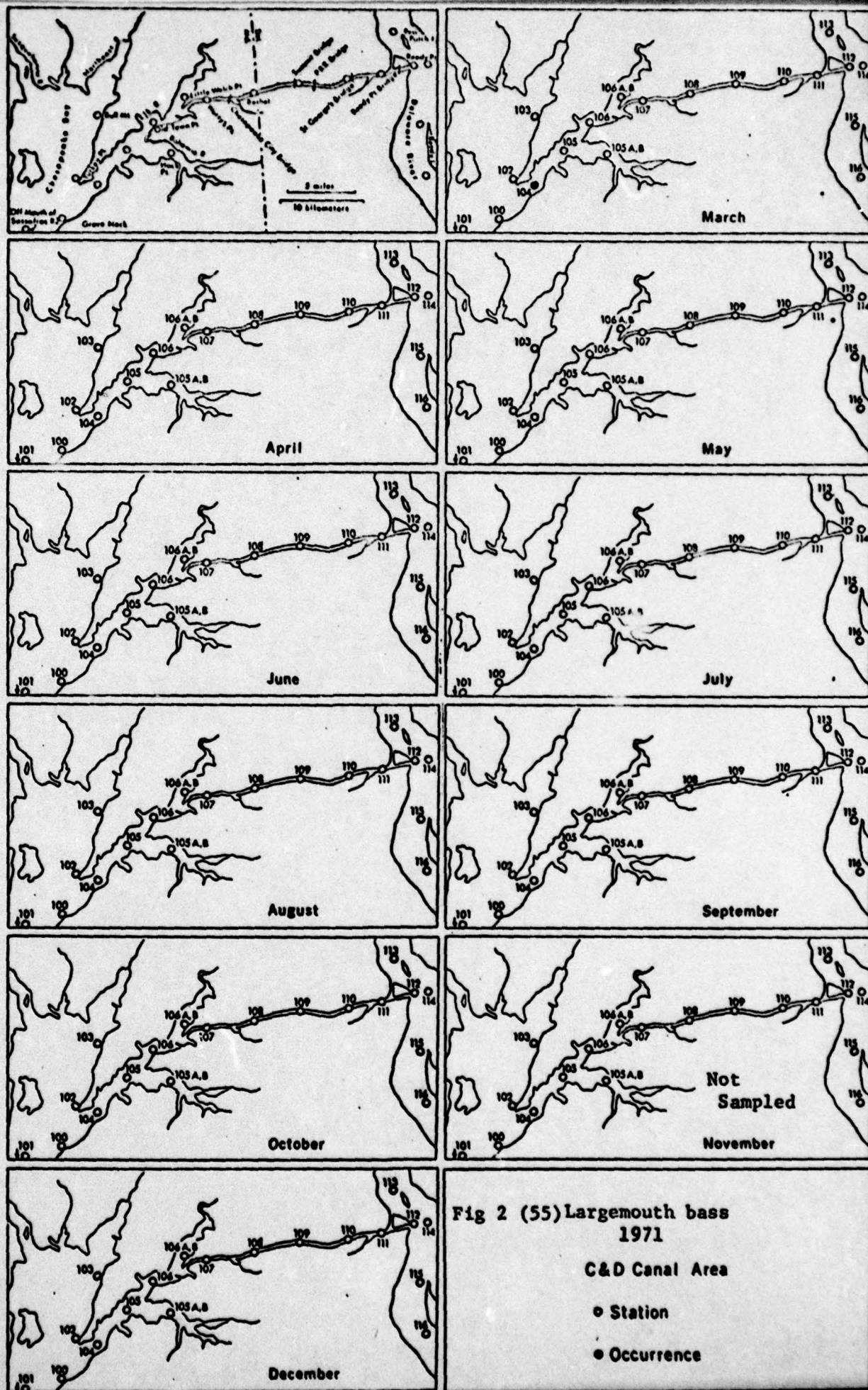


Fig 2 (54) Johnny darter  
1973  
C&D Canal Area

- Station
- Occurrence





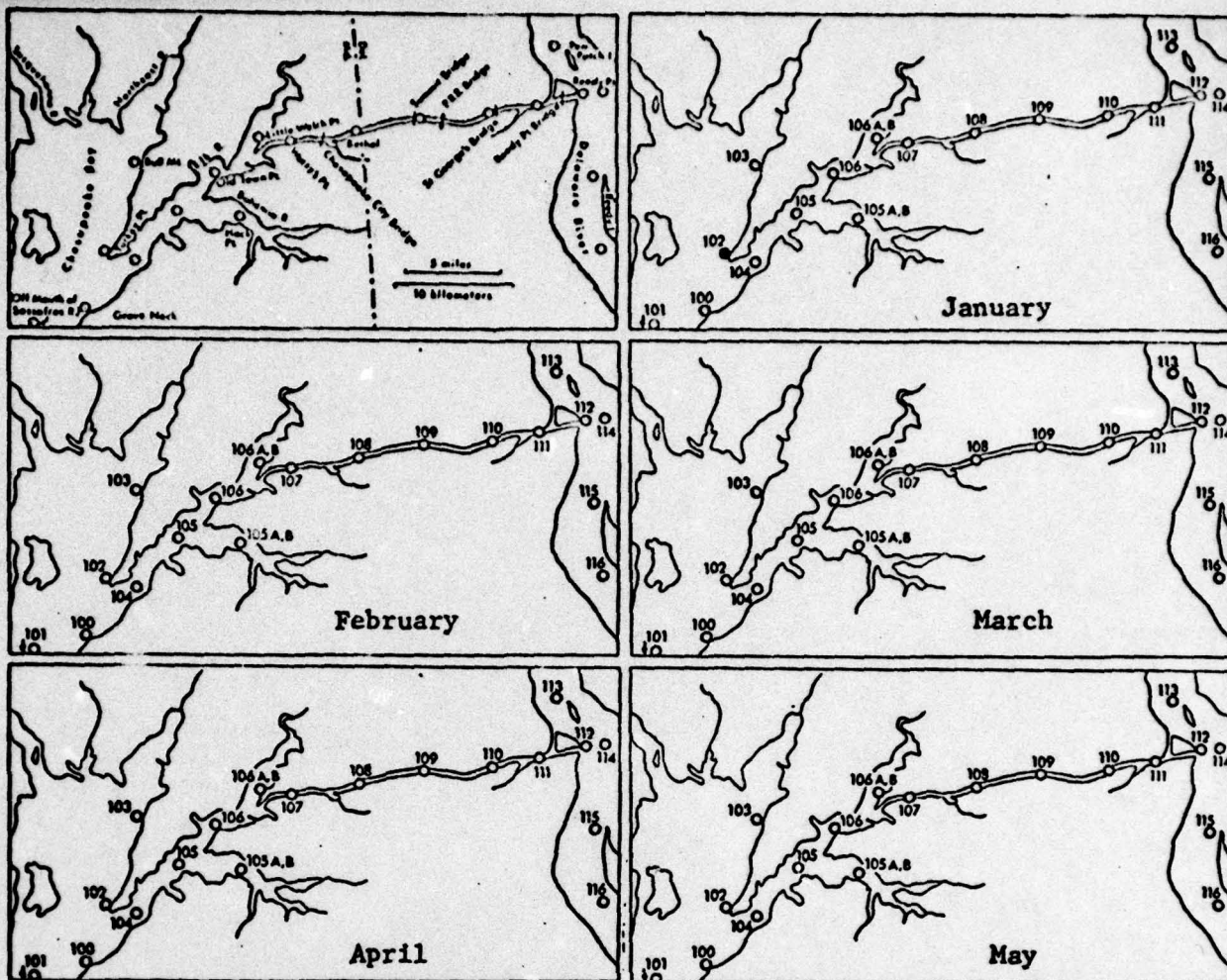
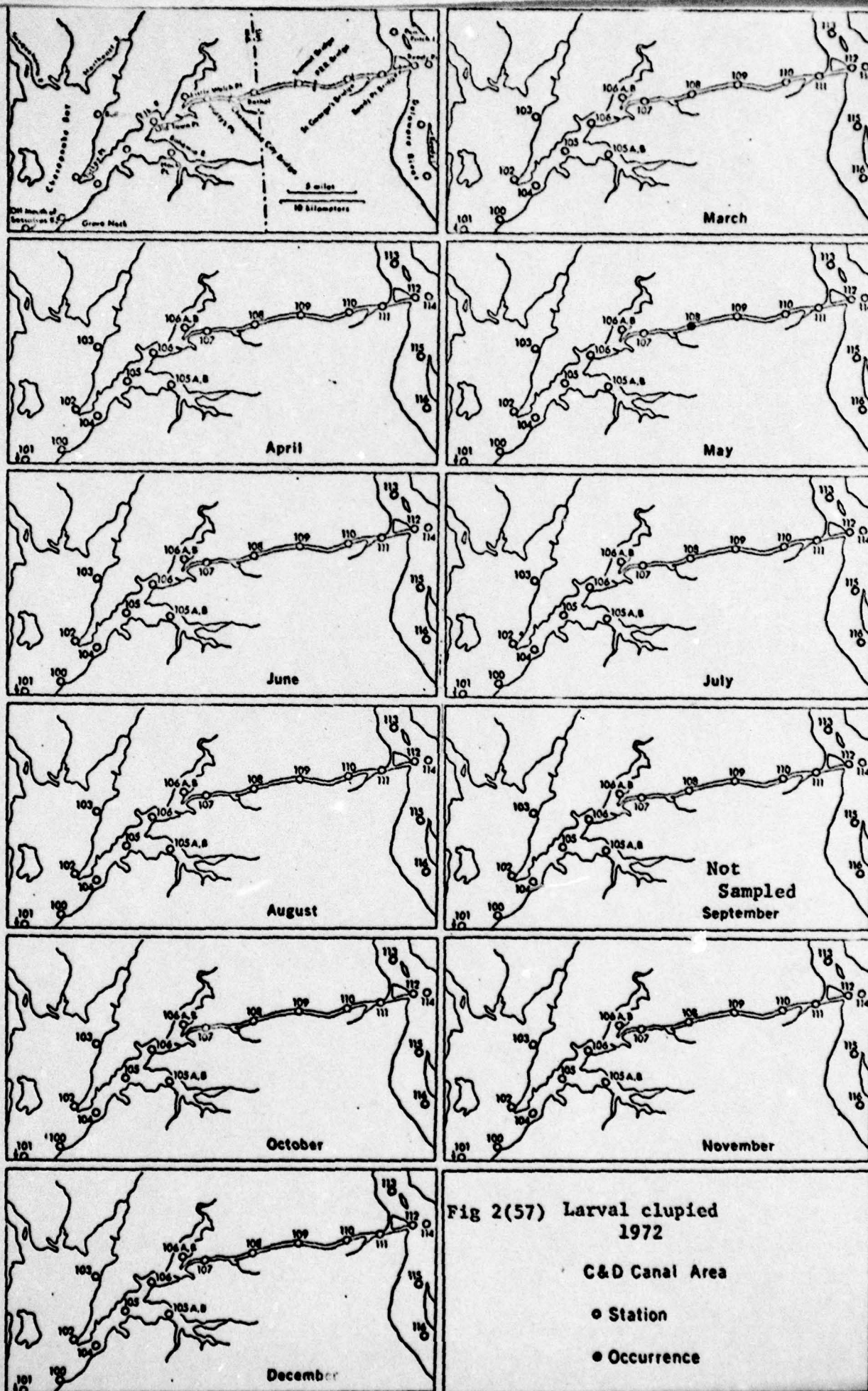
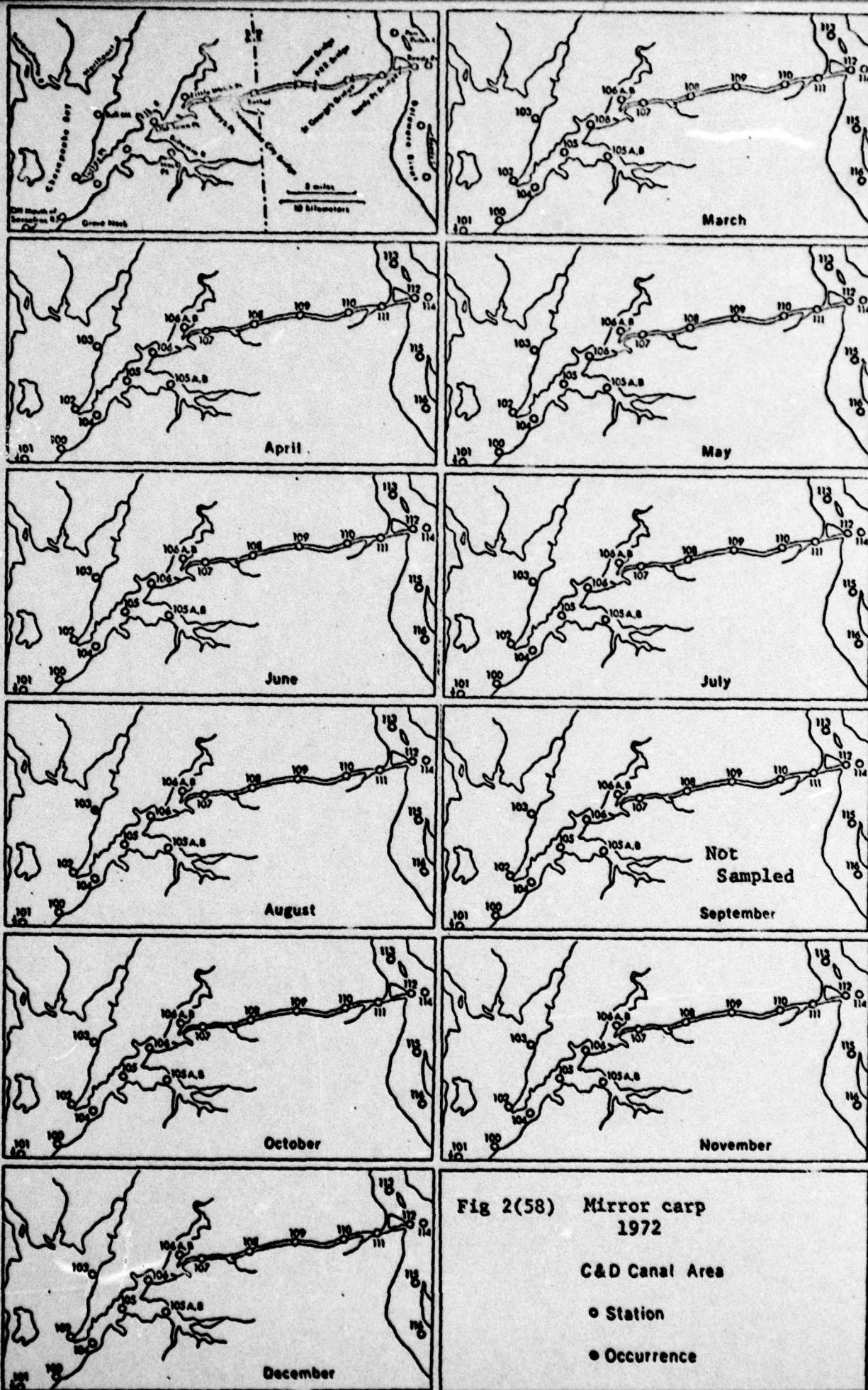


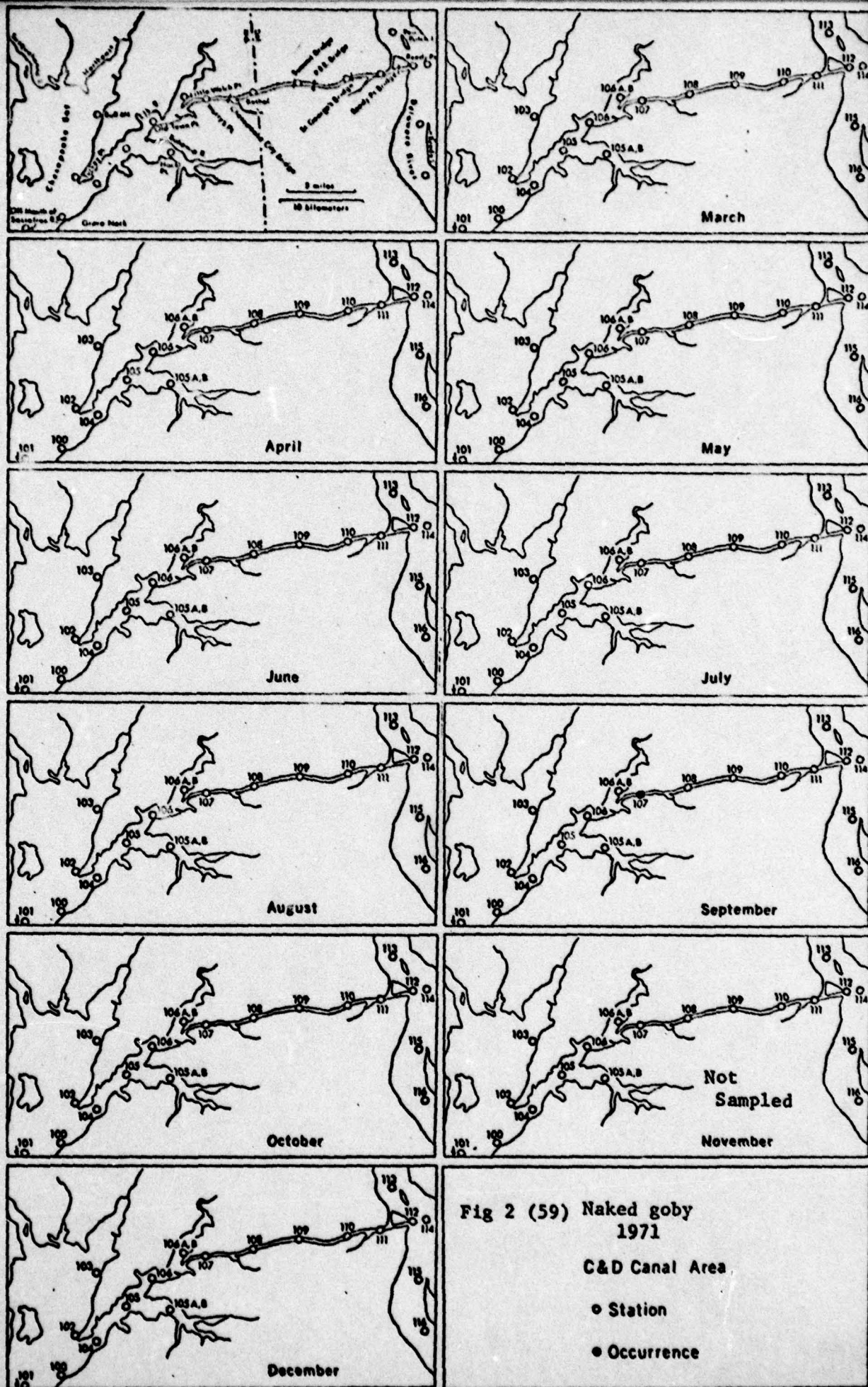
Fig 2(56) · Largemouth bass  
1973  
C&D Canal Area

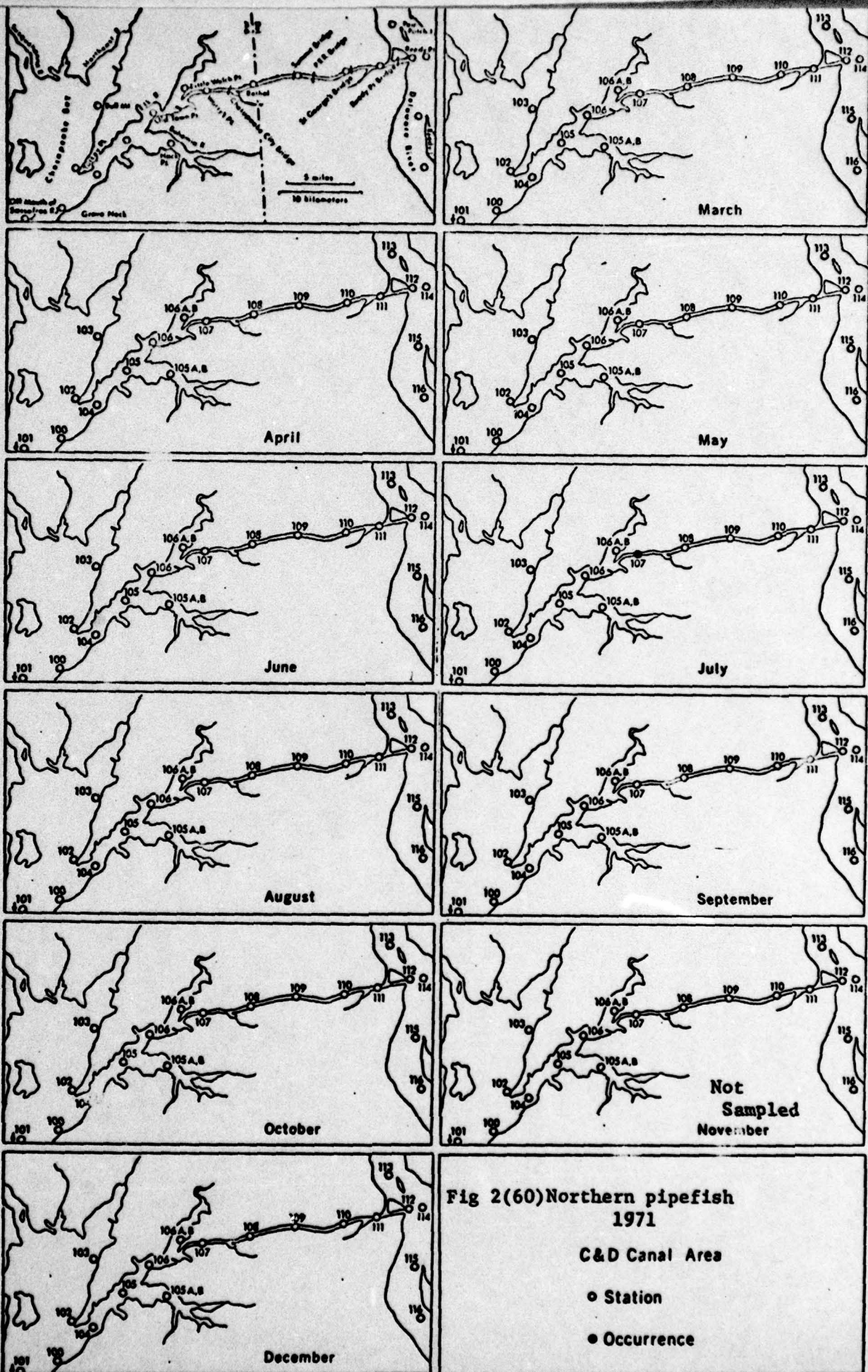




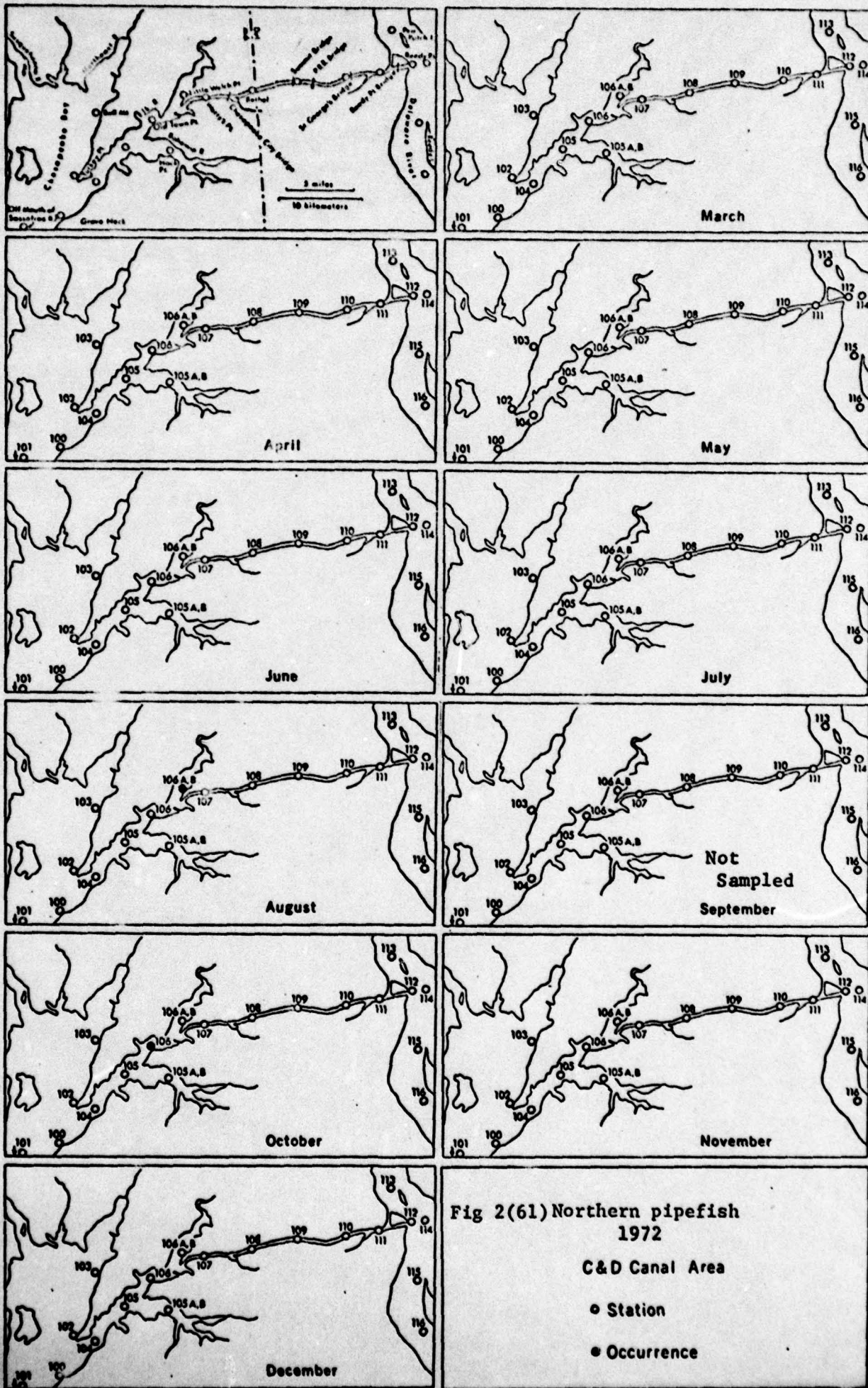












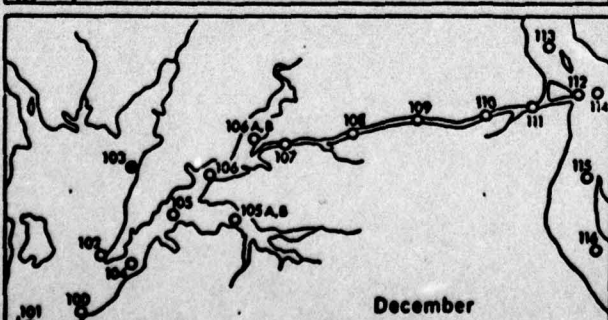
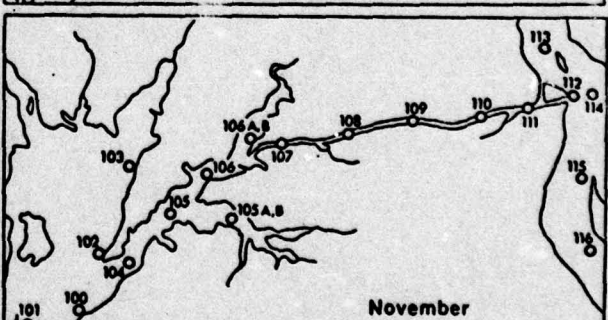
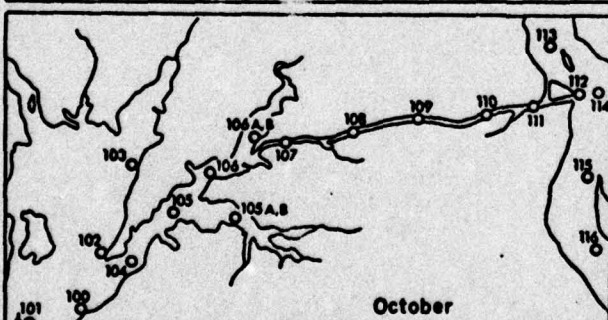
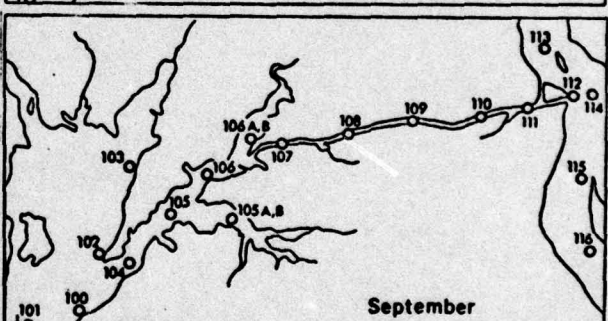
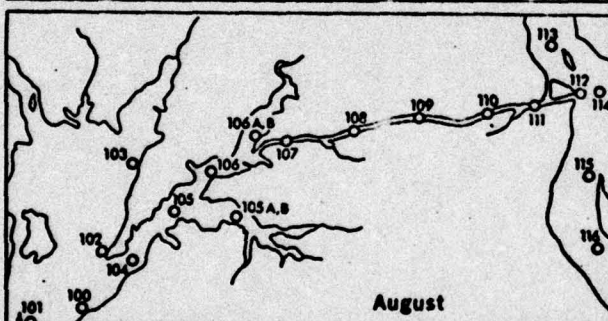
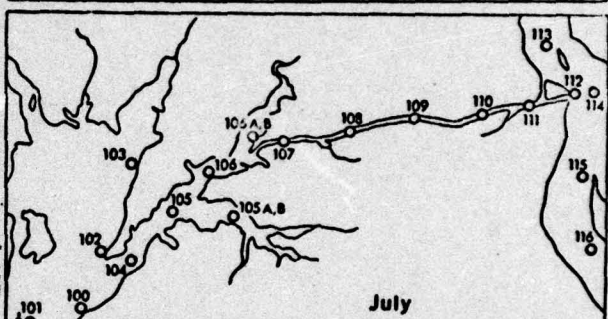
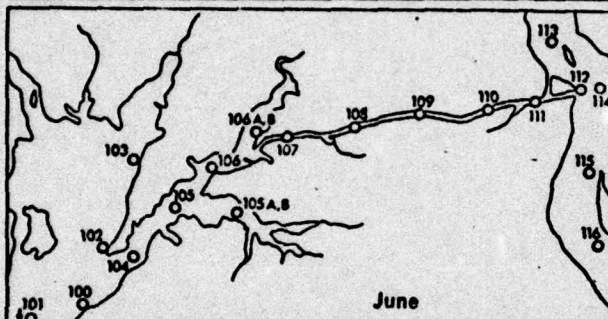
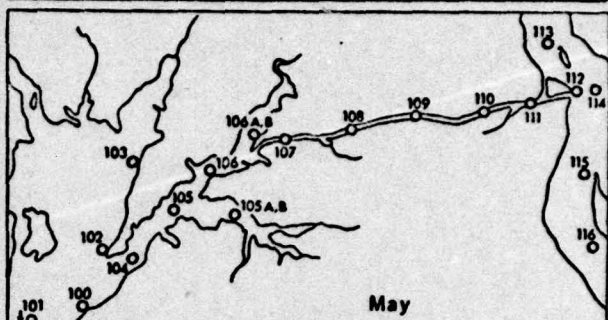
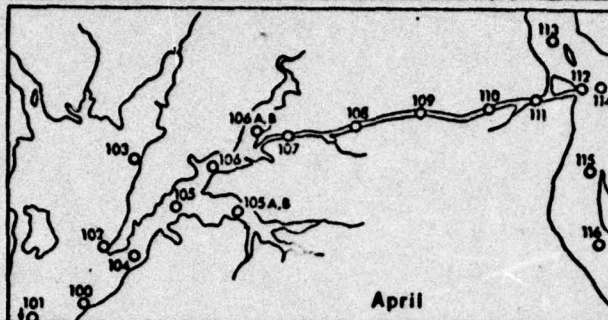
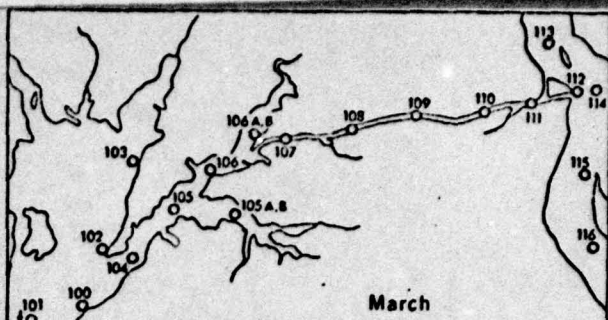
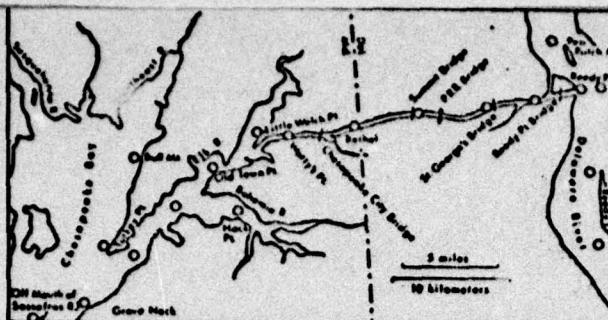
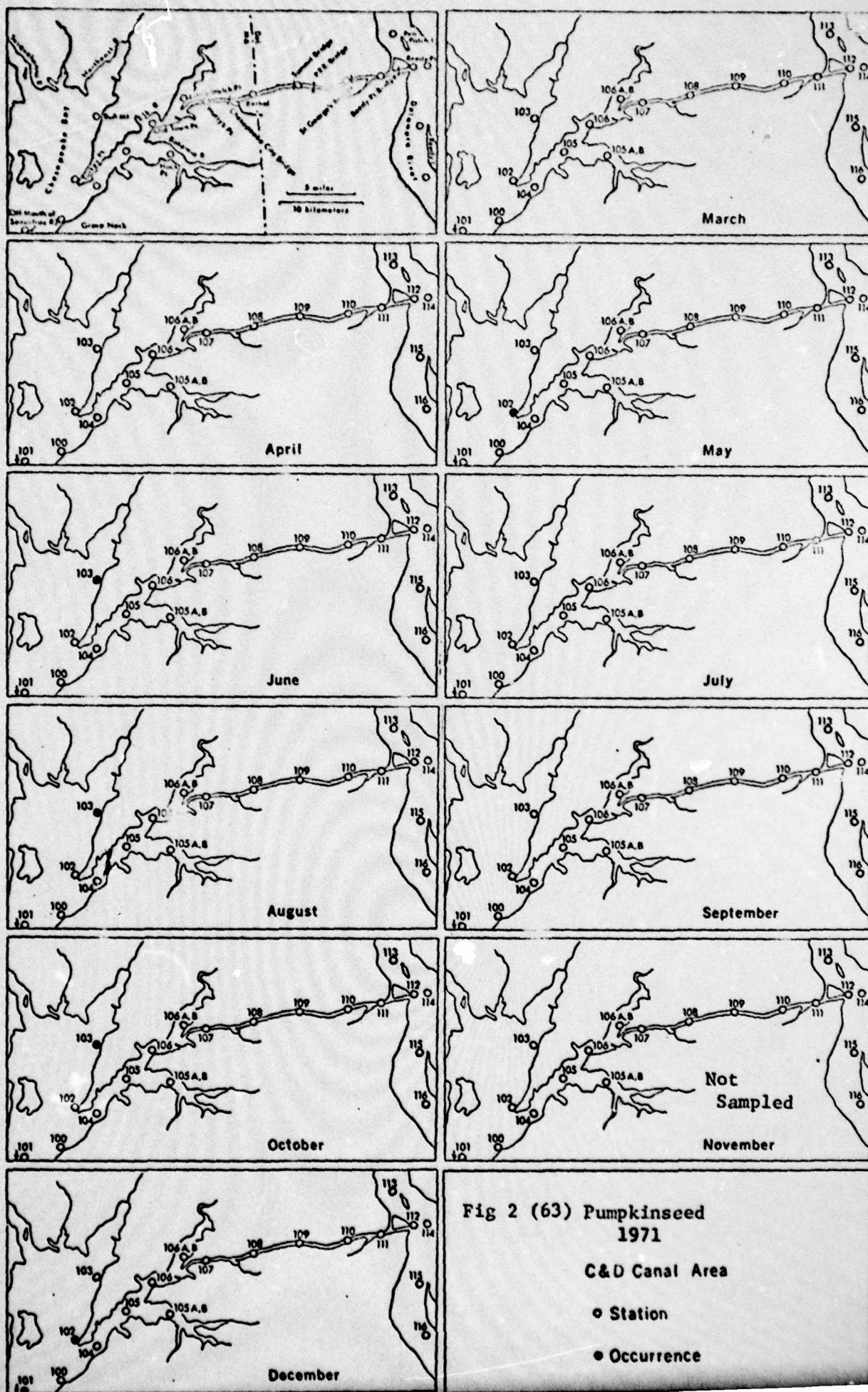
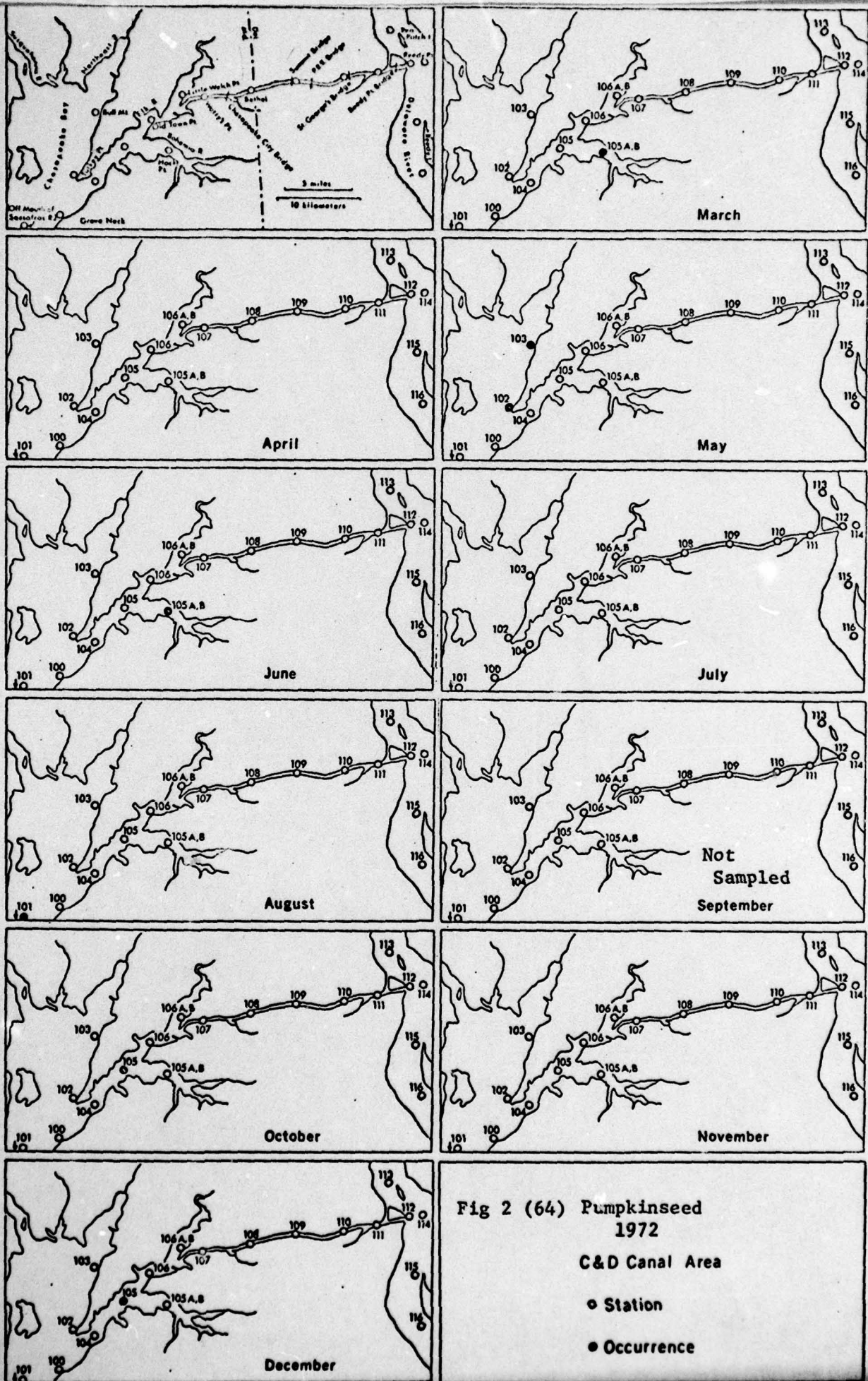


Fig 2(62) Pumpkinseed  
December 1970 only  
C&D Canal Area  
○ Station  
● Occurrence









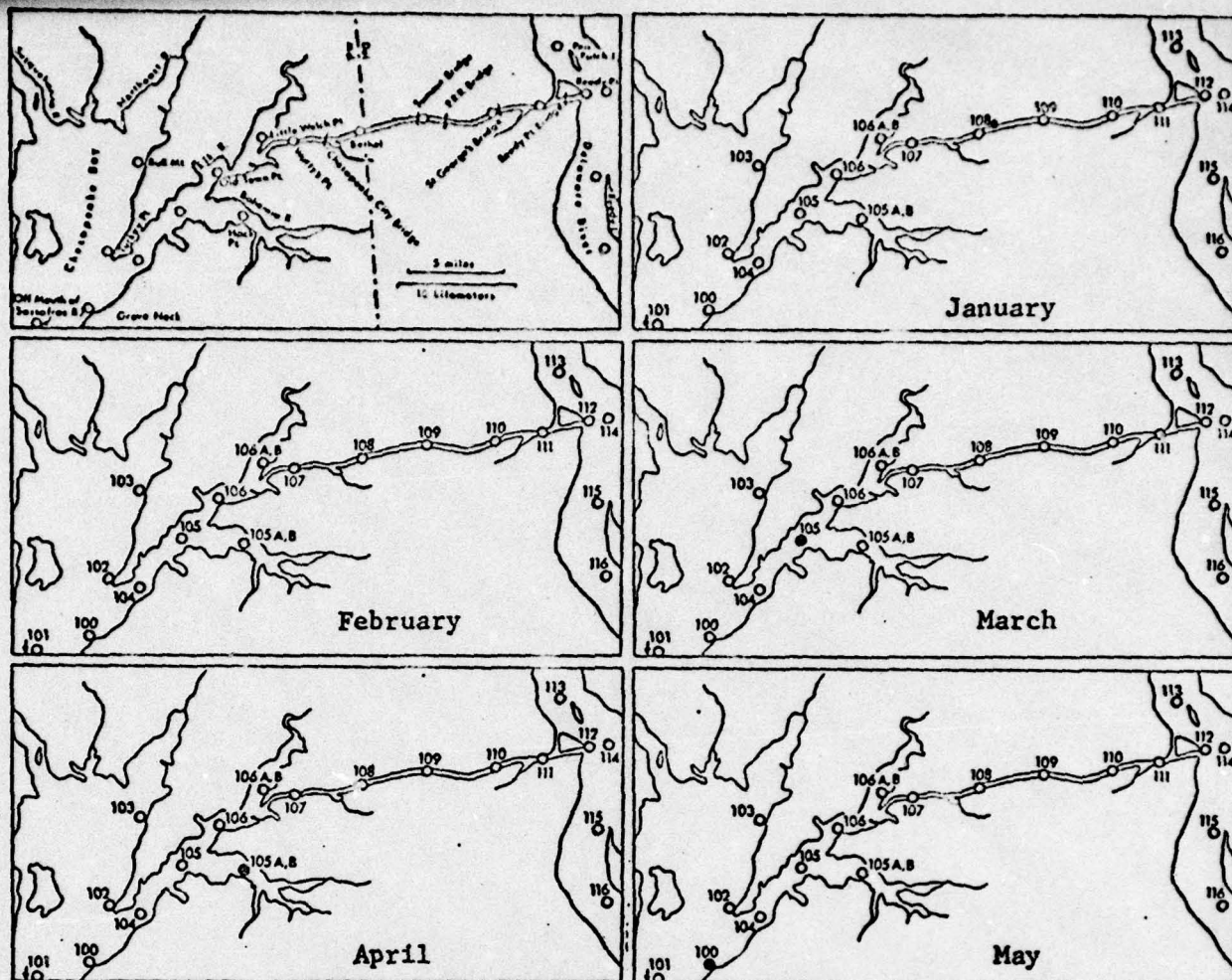
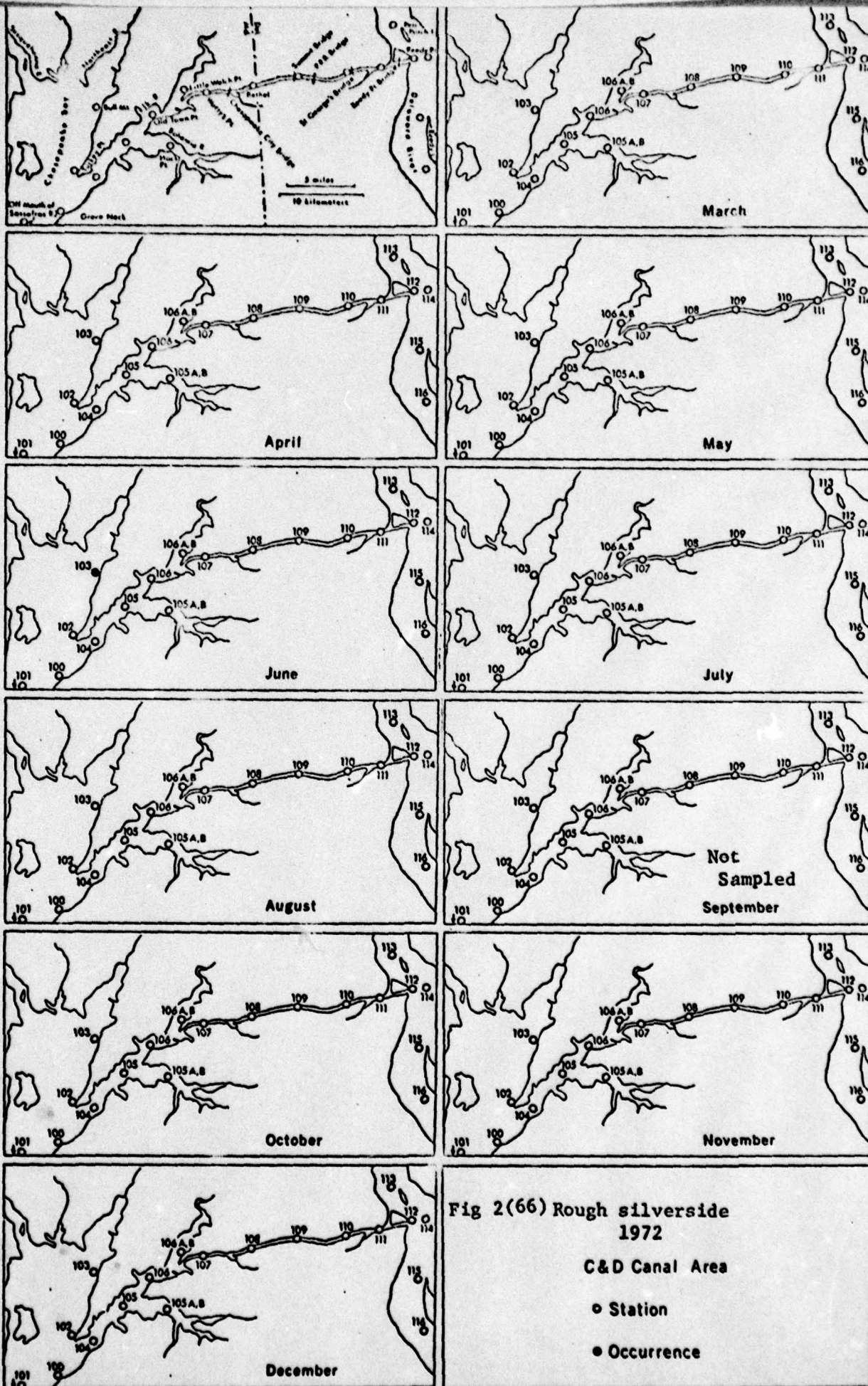


Fig 2 (65) Pumpkinseed

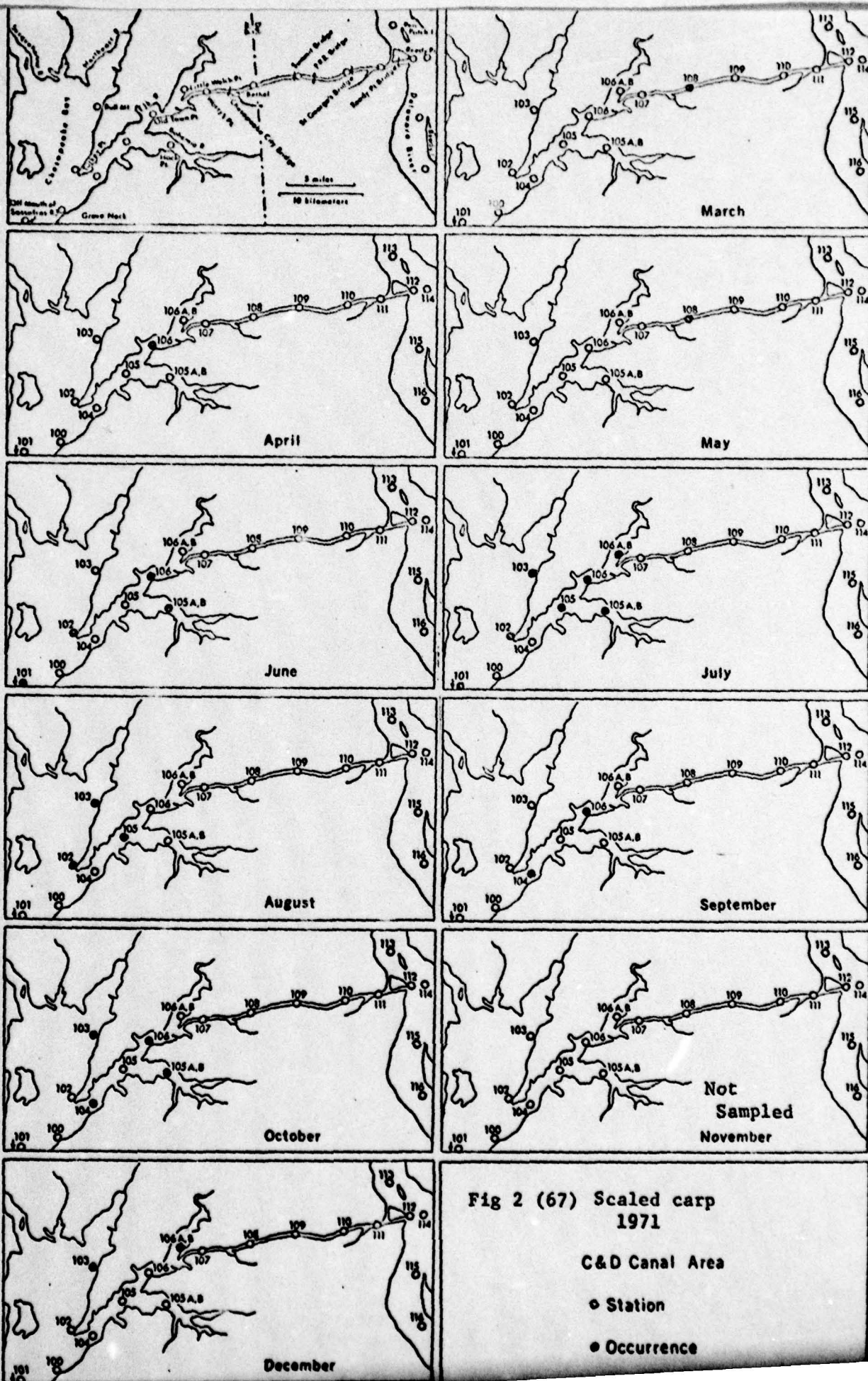
1973  
C&D Canal Area

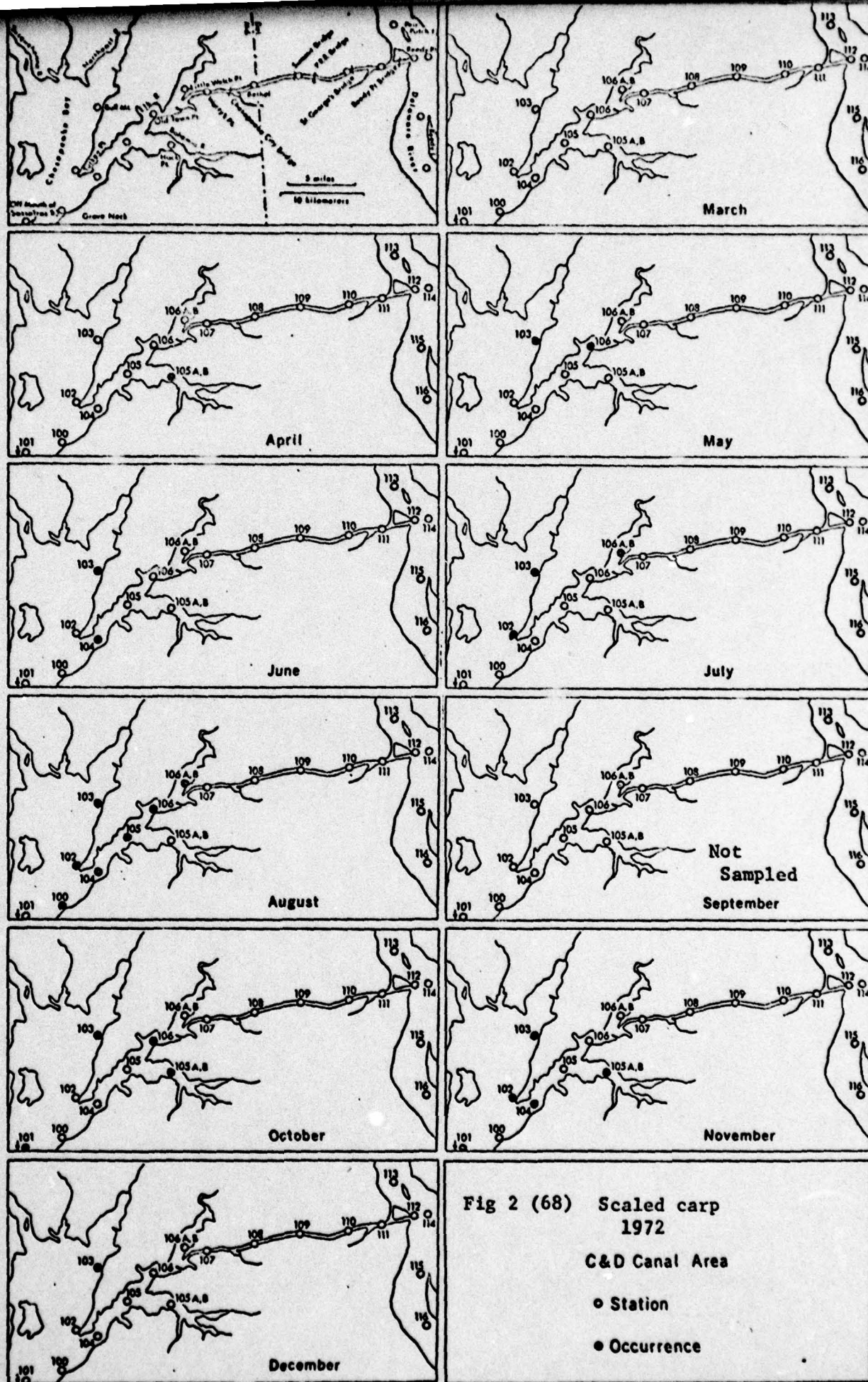
○ Station

● Occurrence



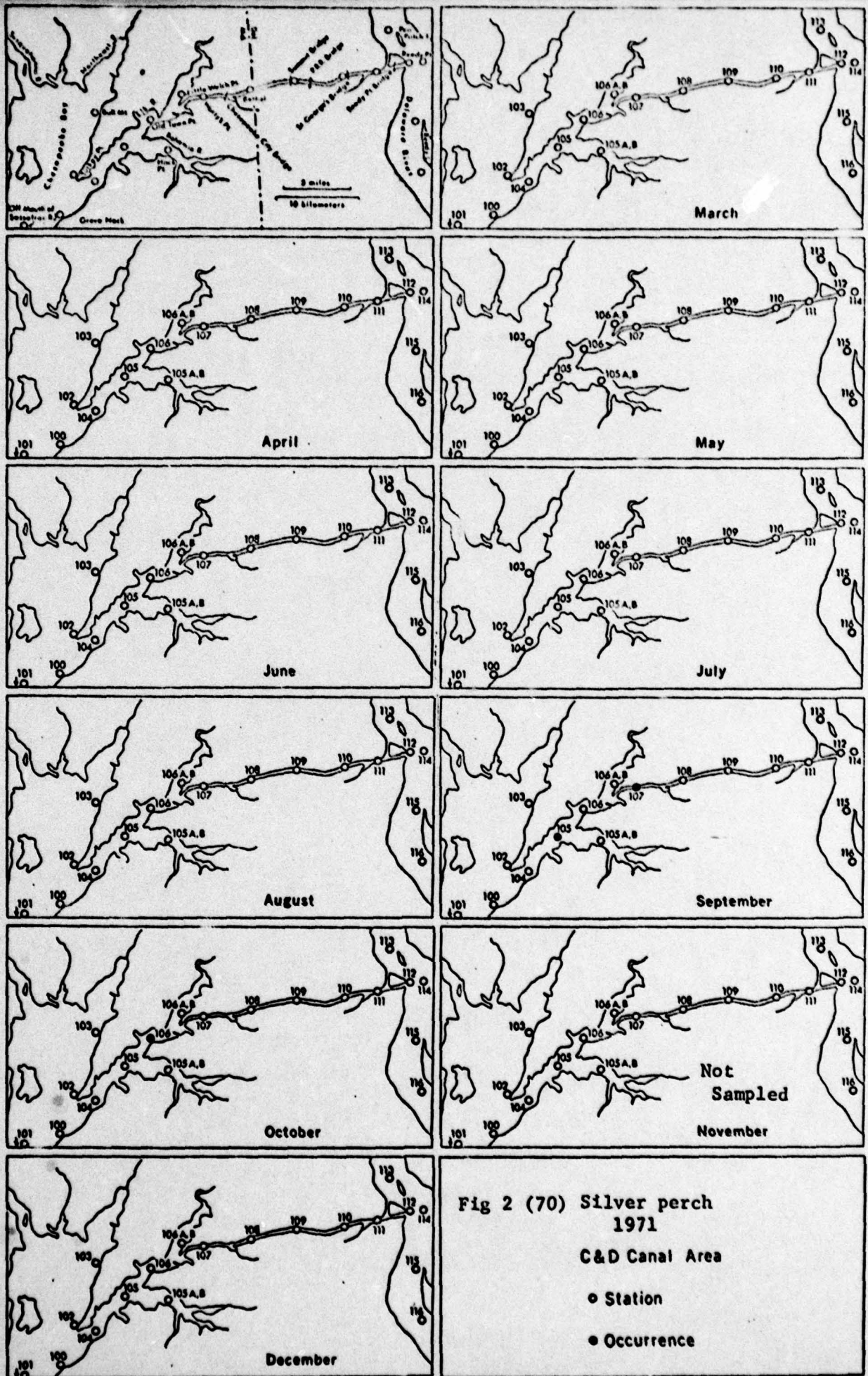




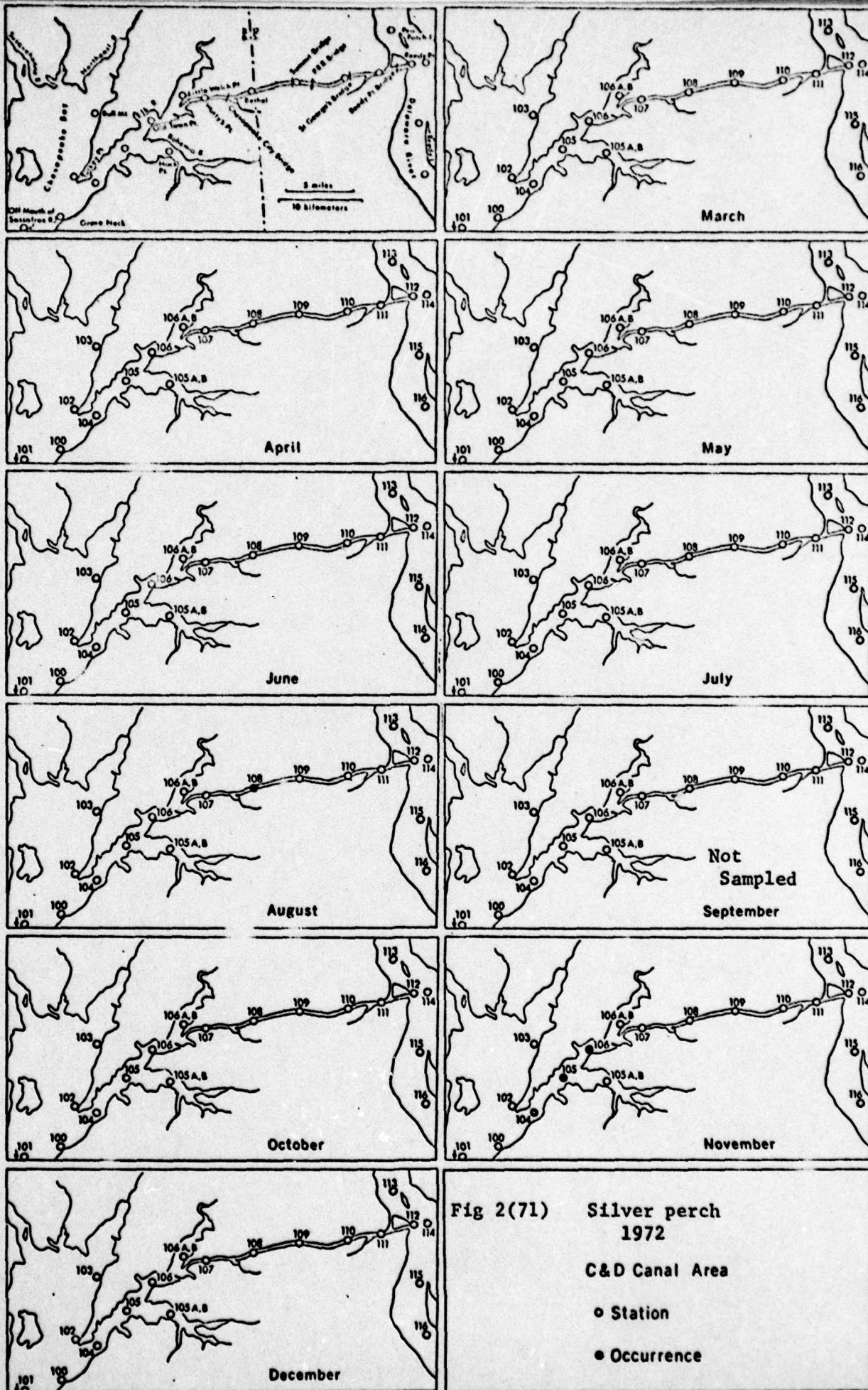


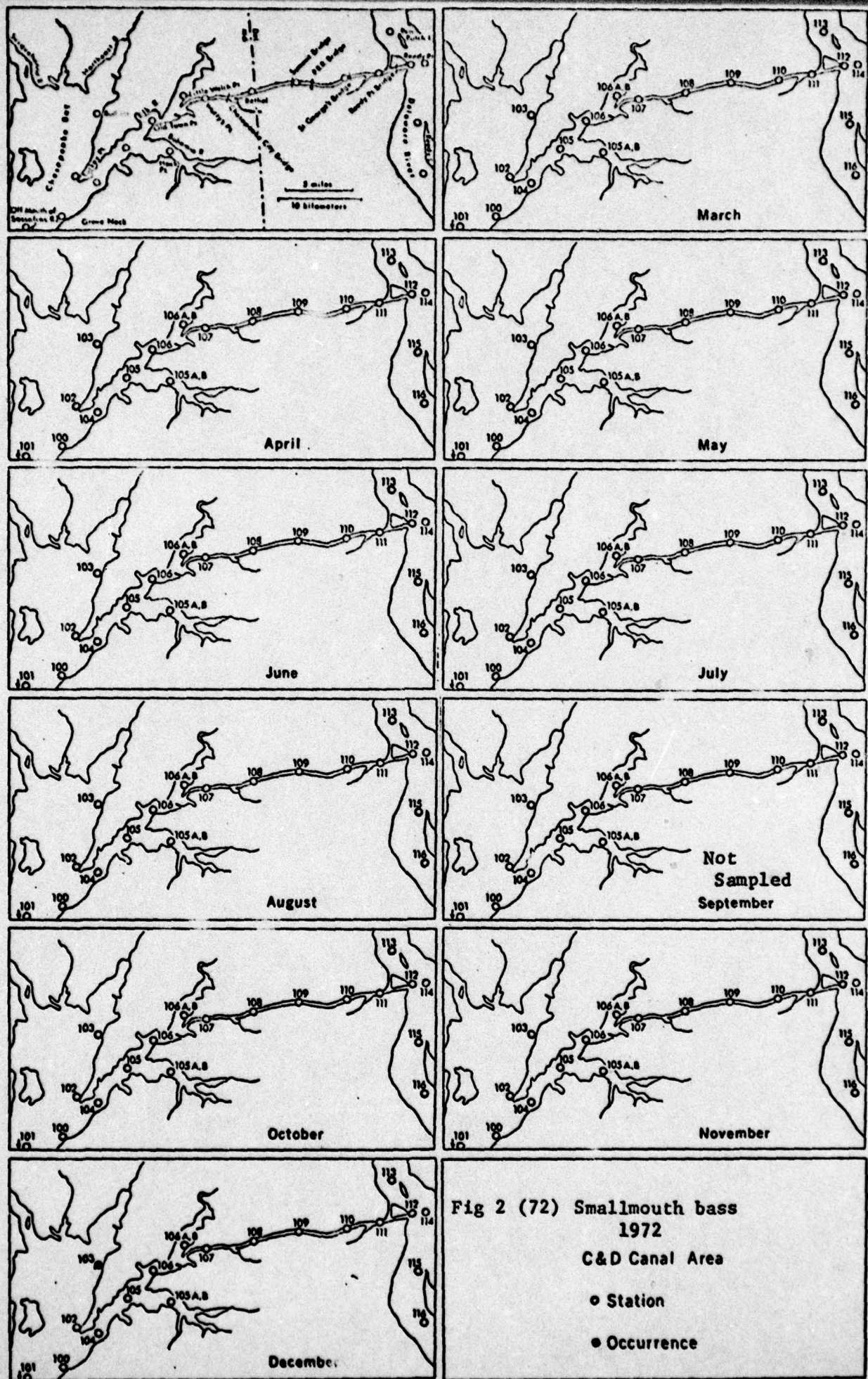




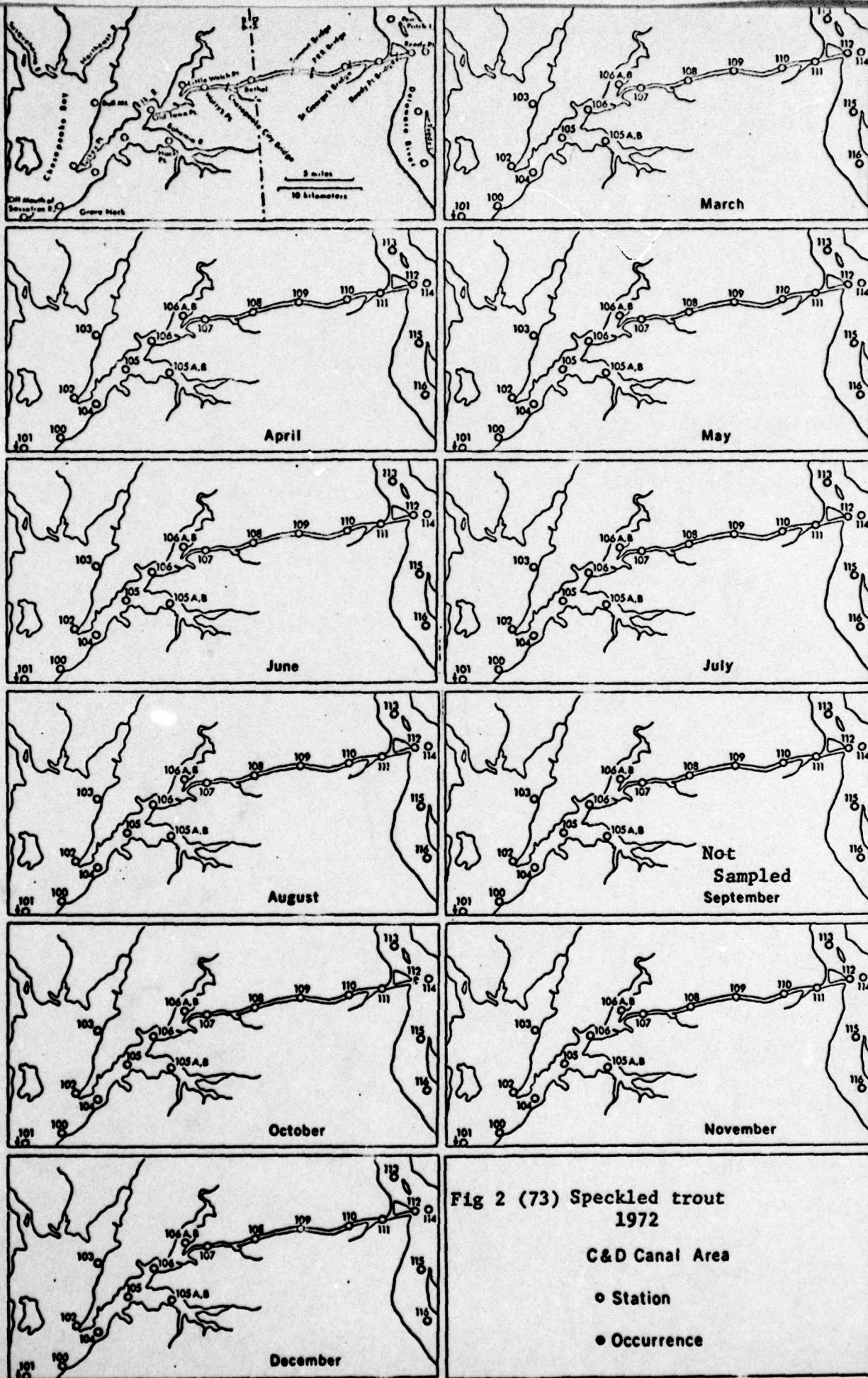


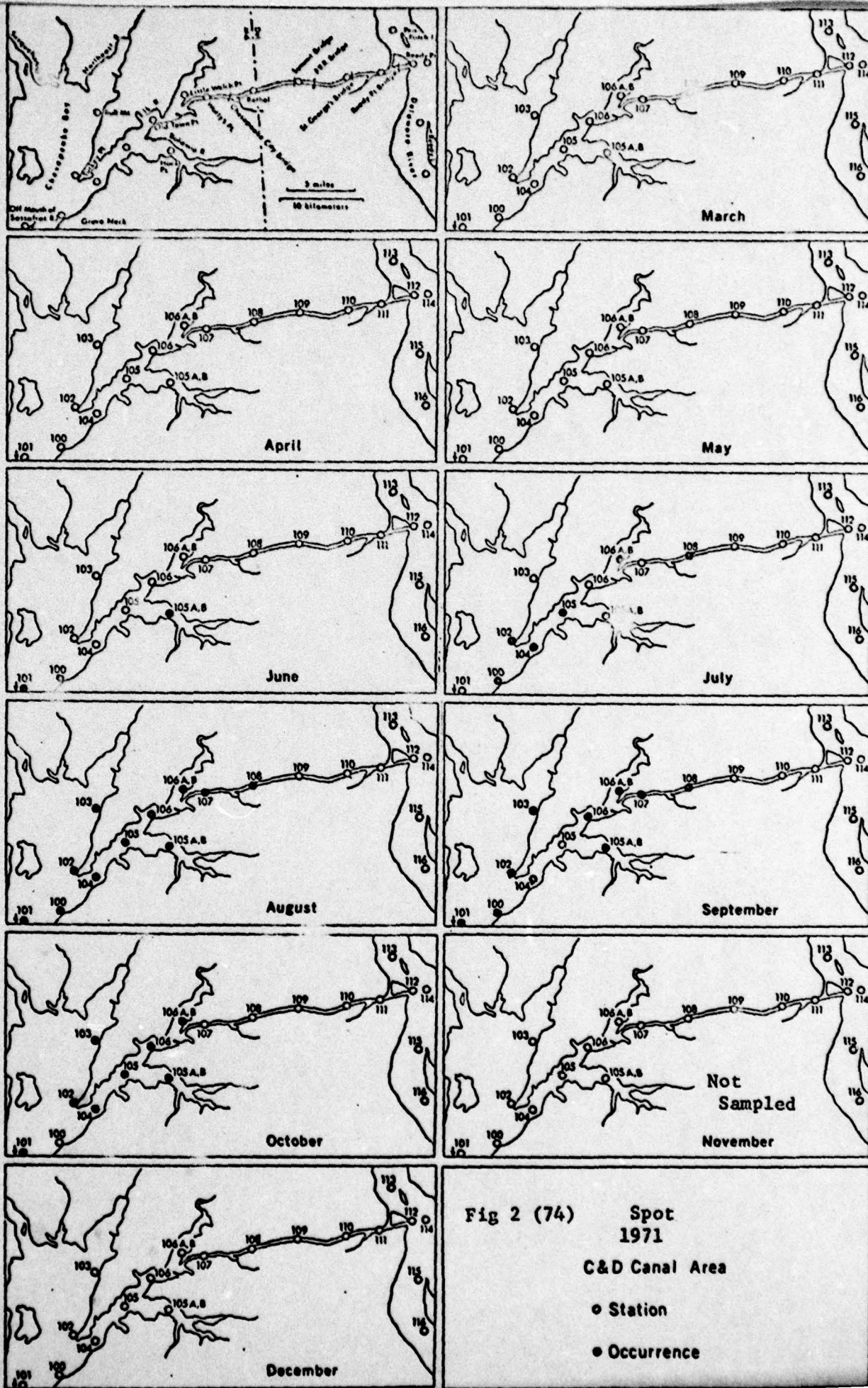




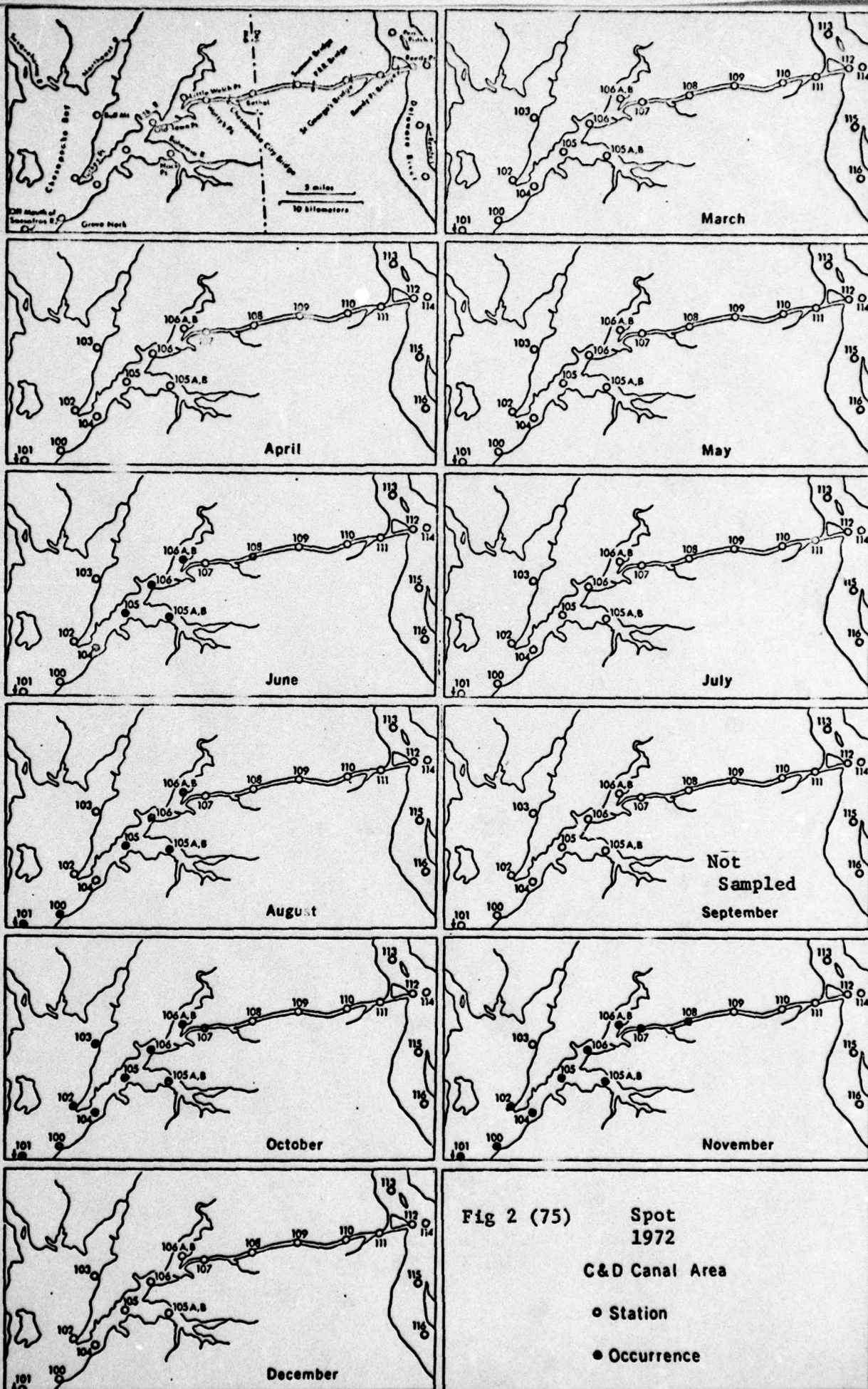






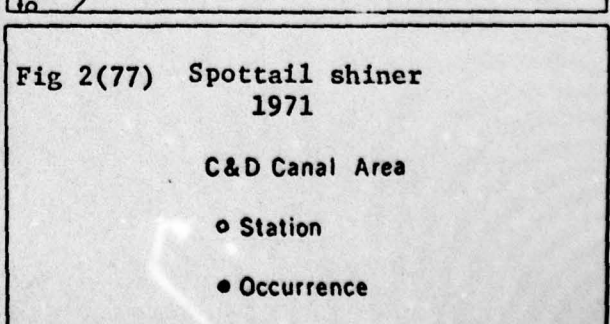
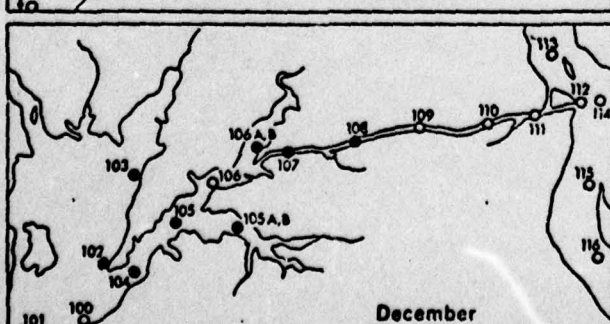
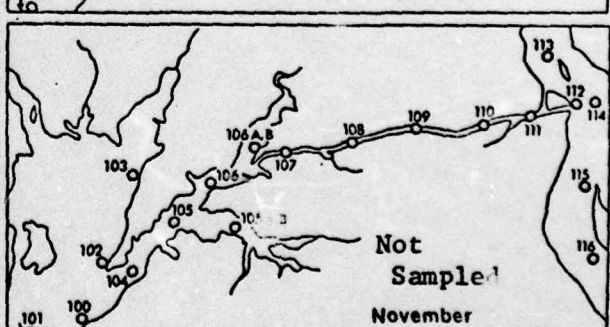
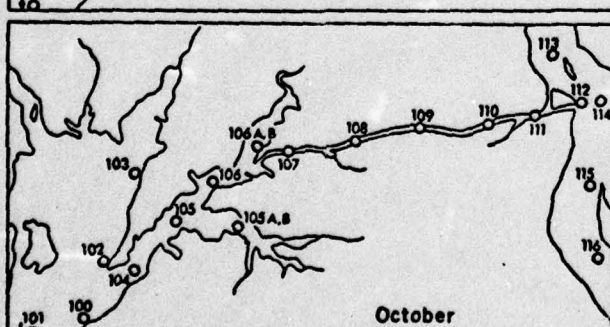
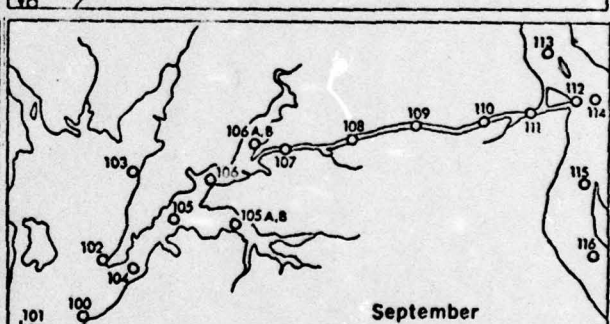
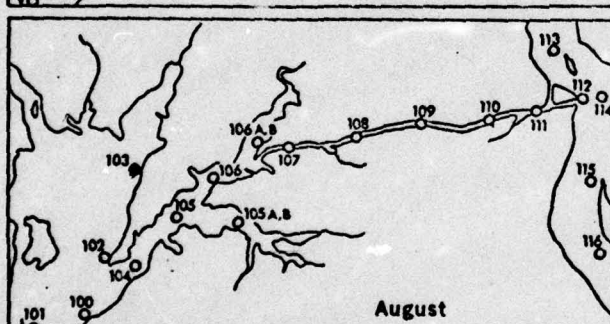
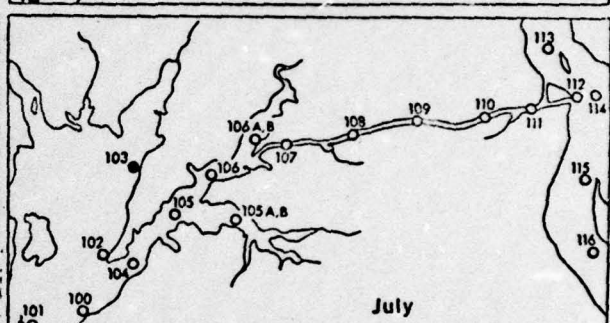
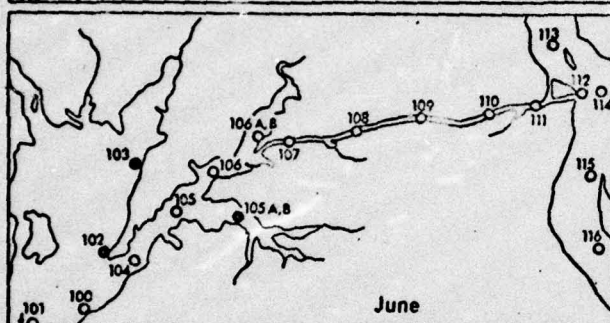
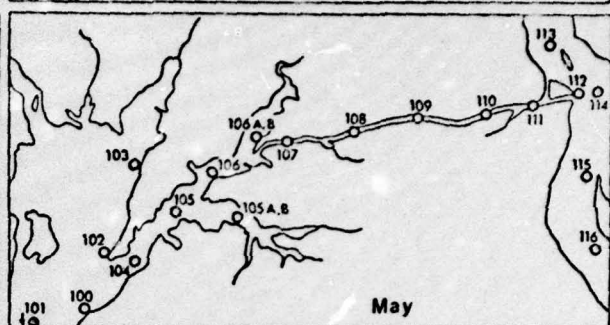
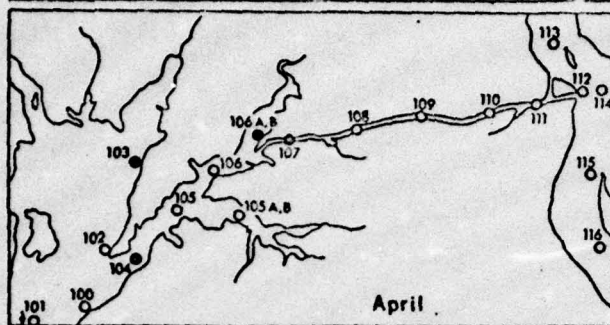
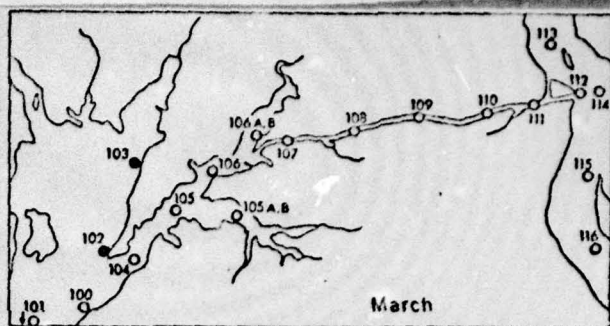
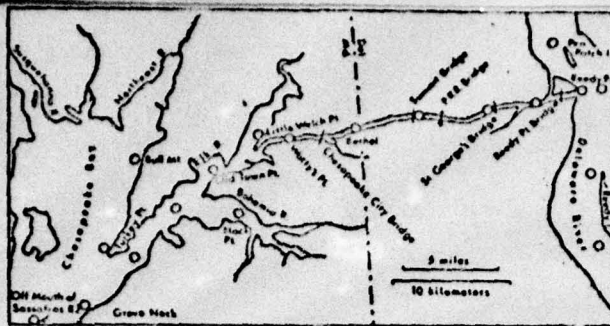


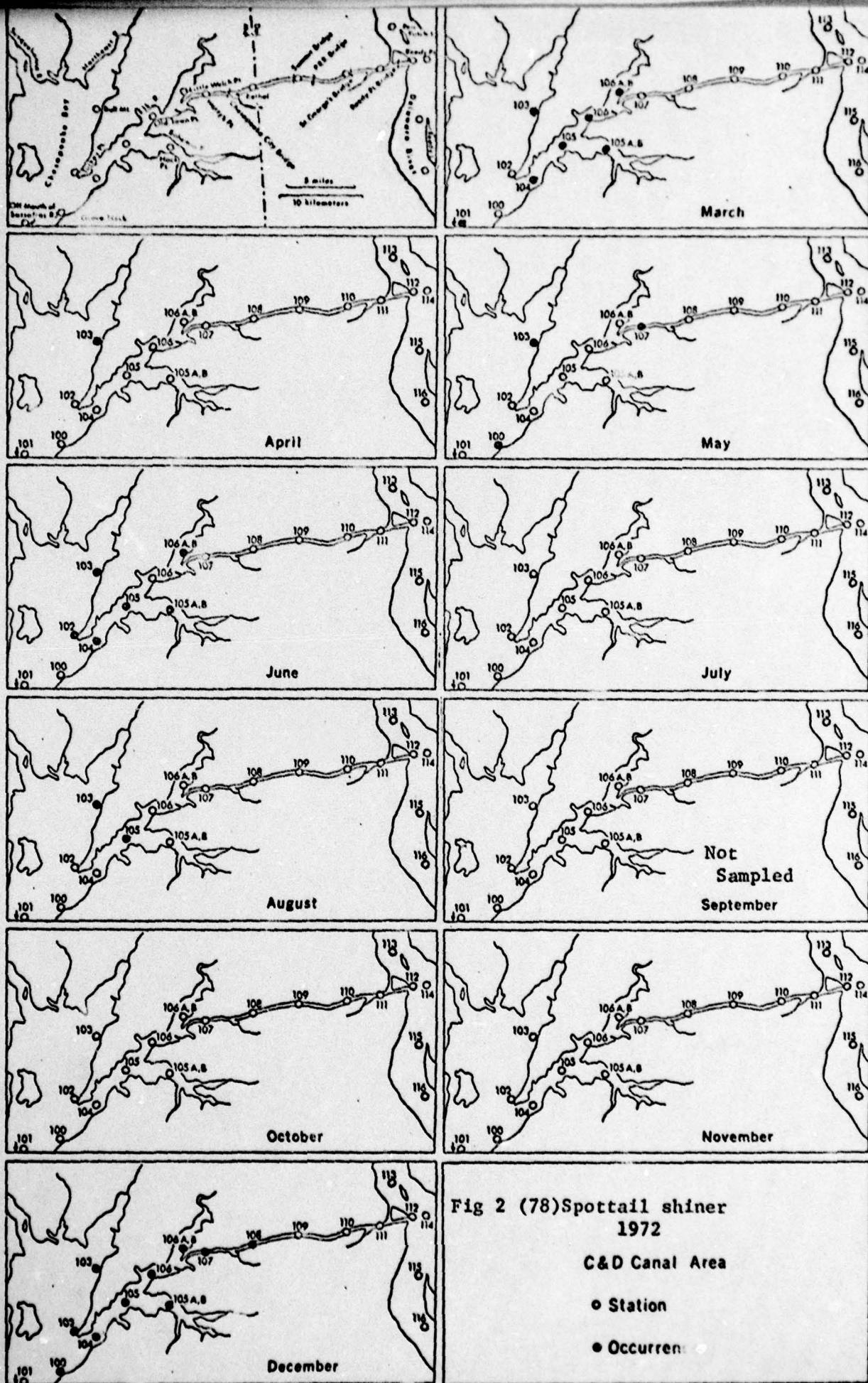














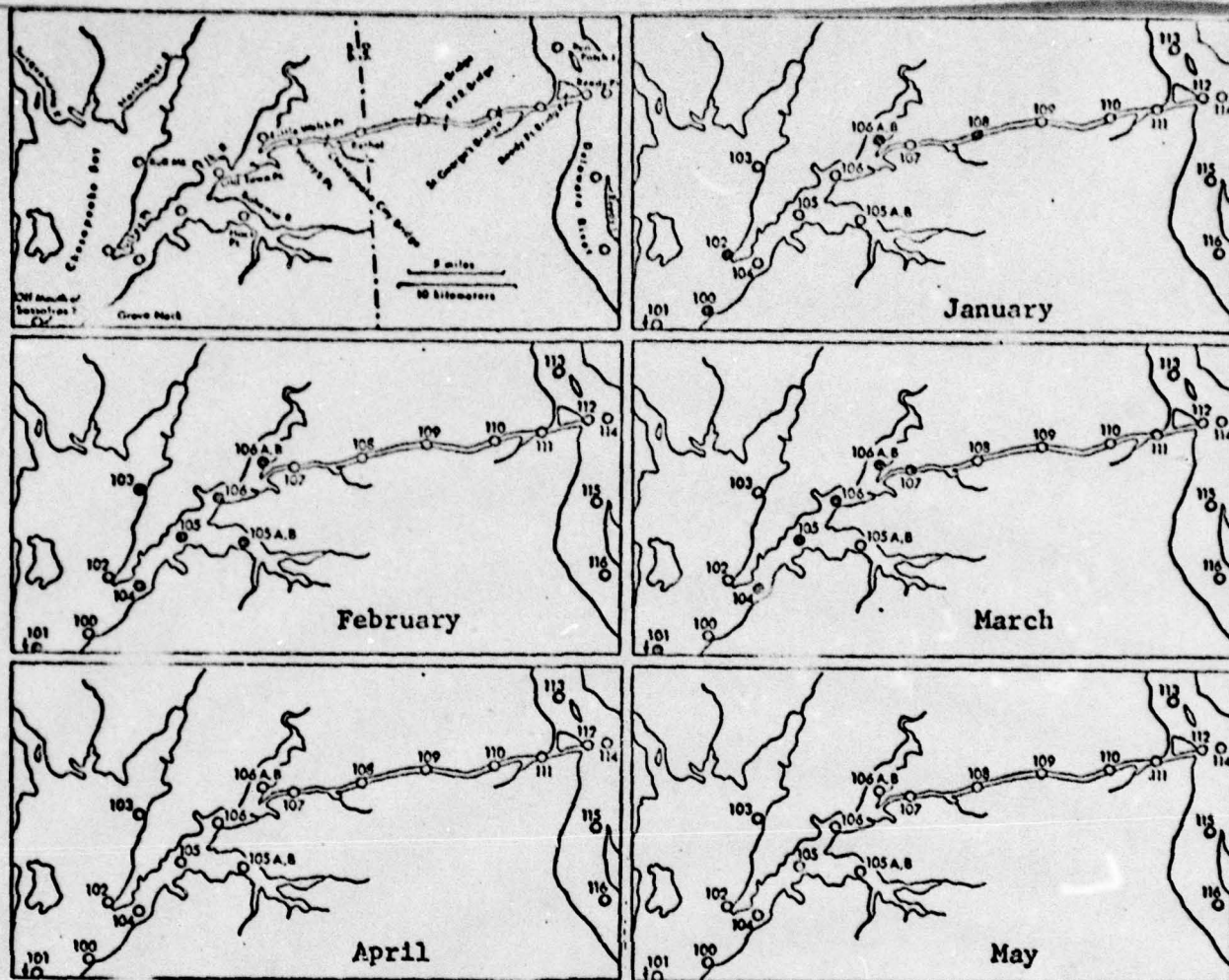
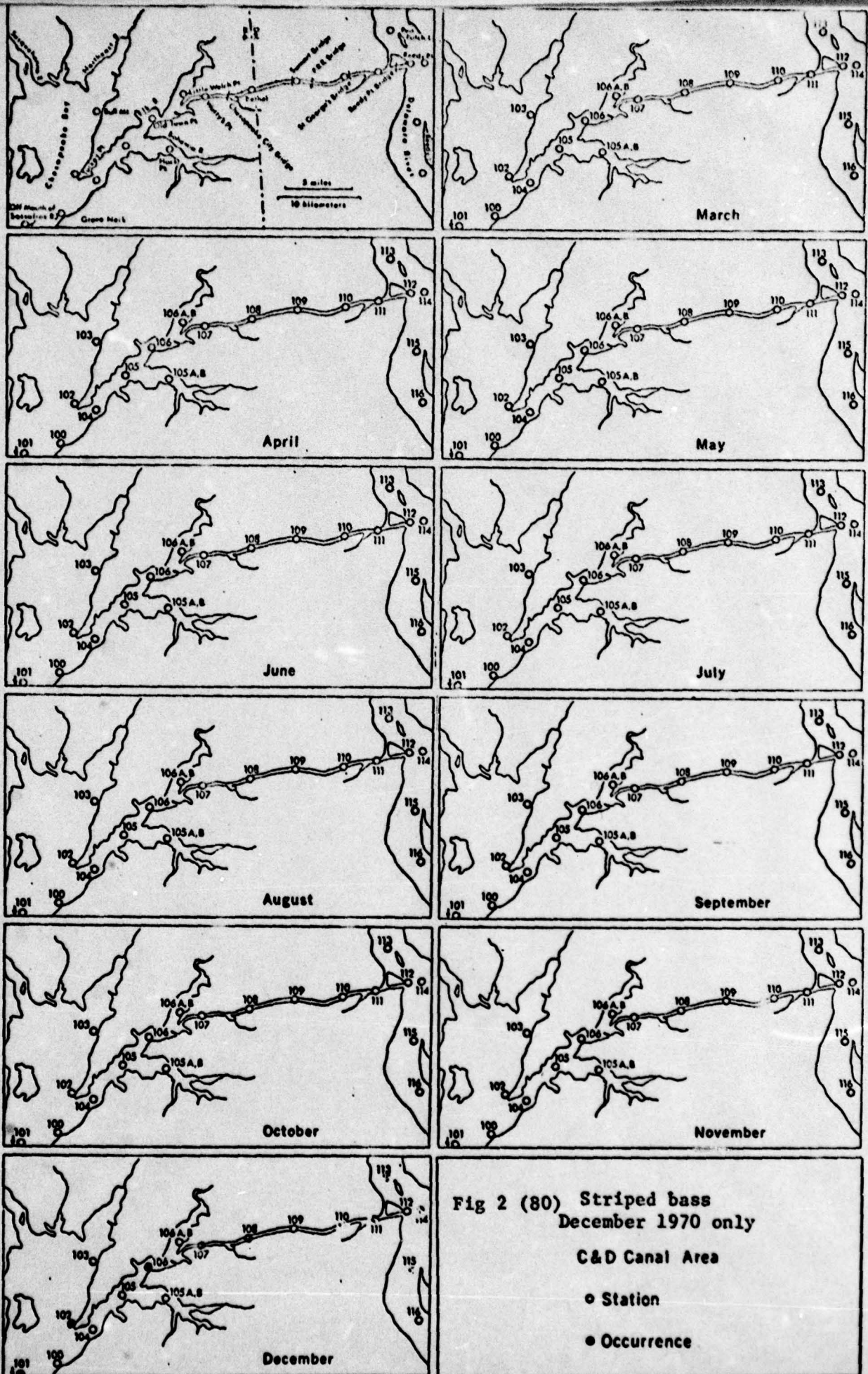
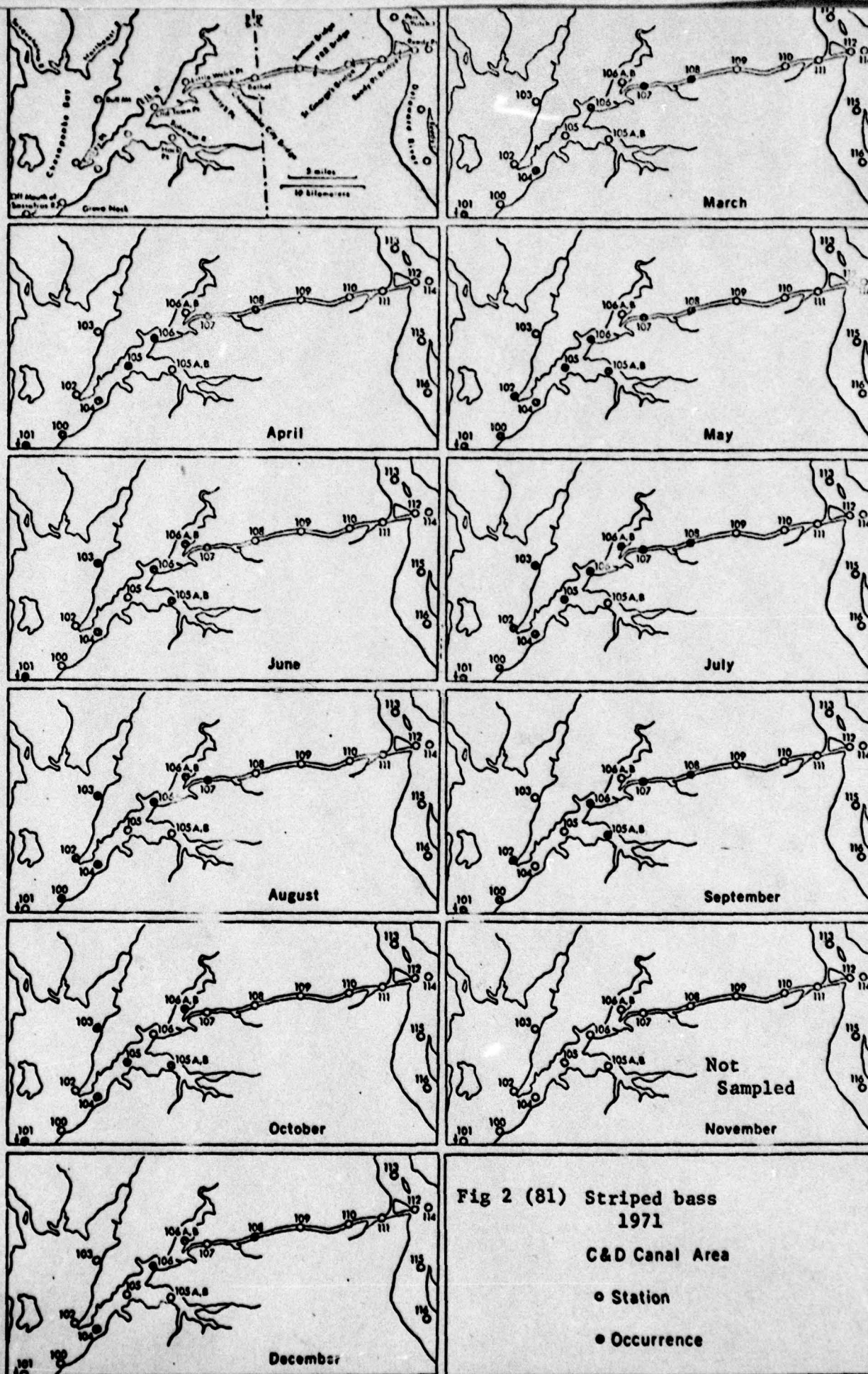
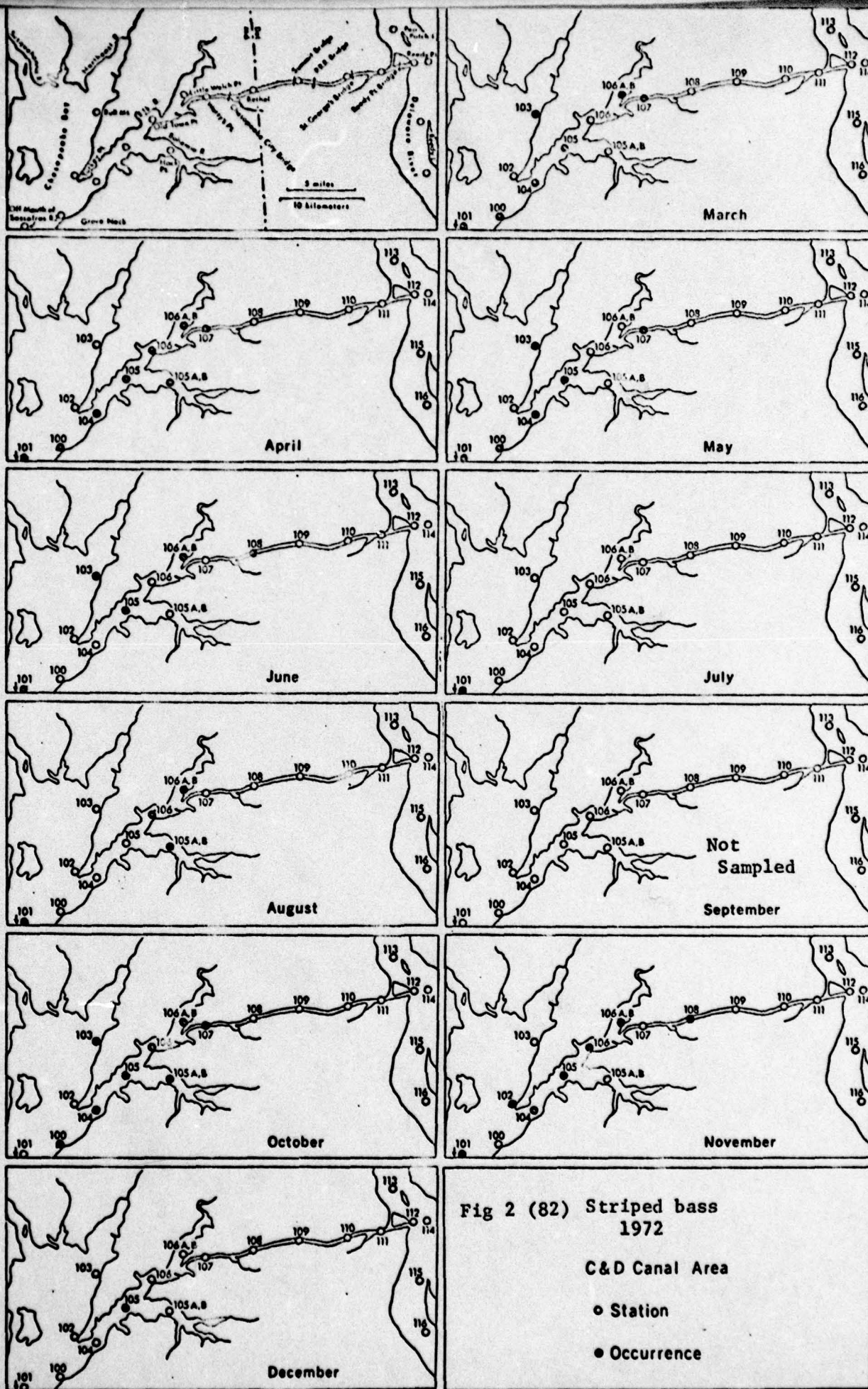


Fig 2 (79) Spottail shiner  
1973  
C&D Canal Area











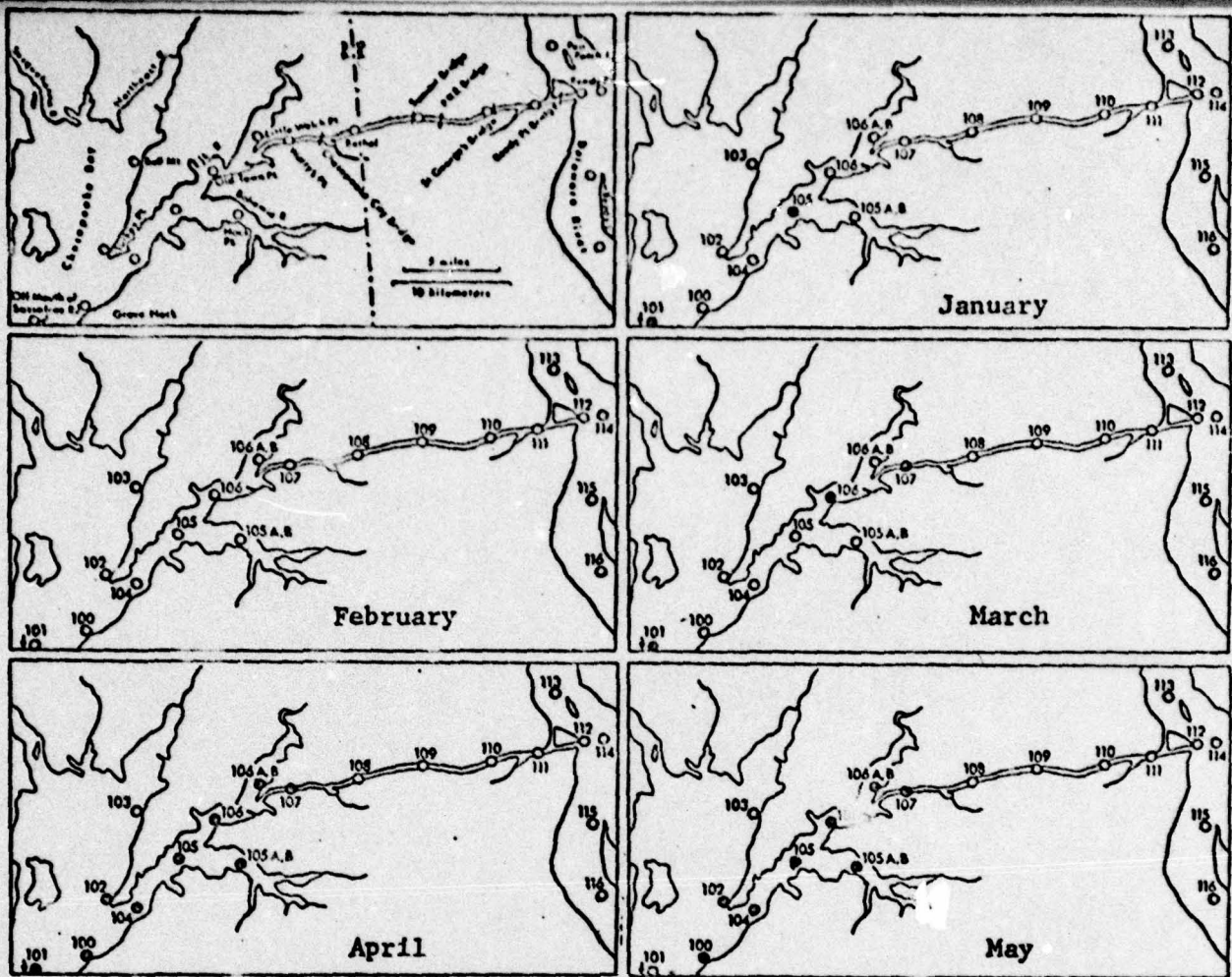
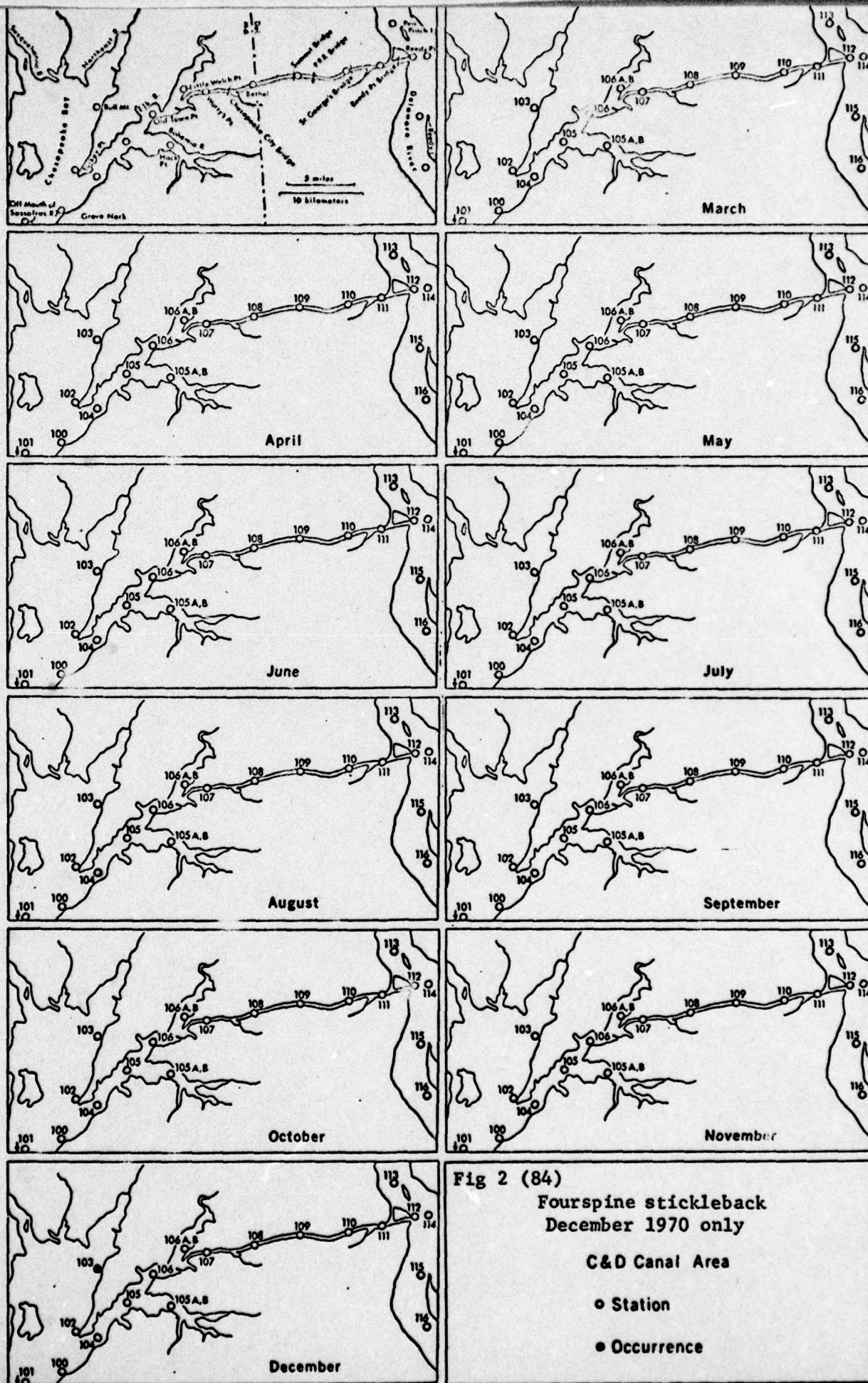
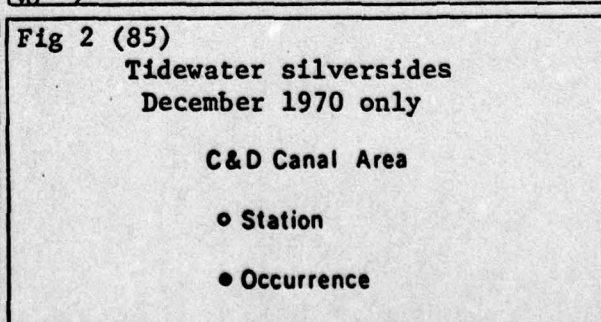
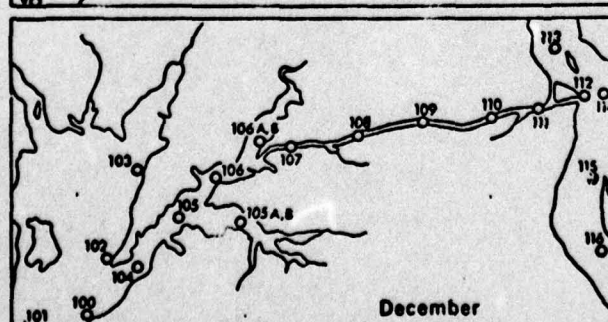
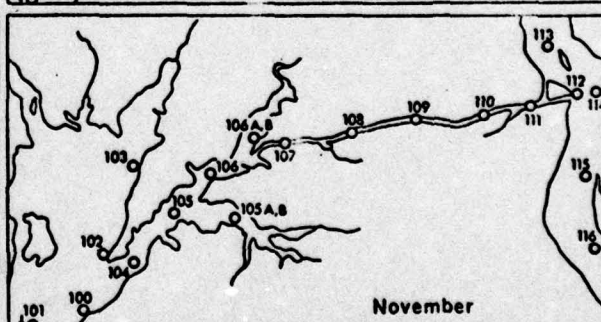
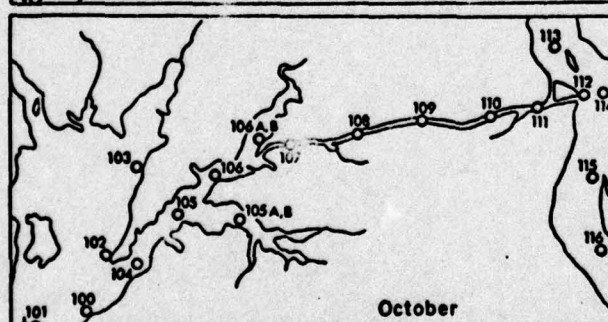
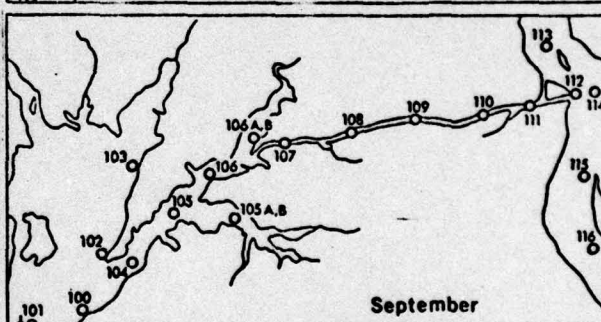
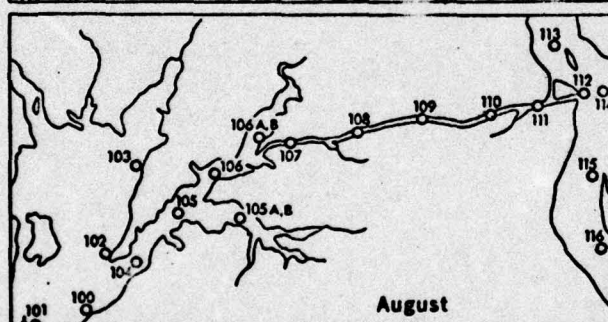
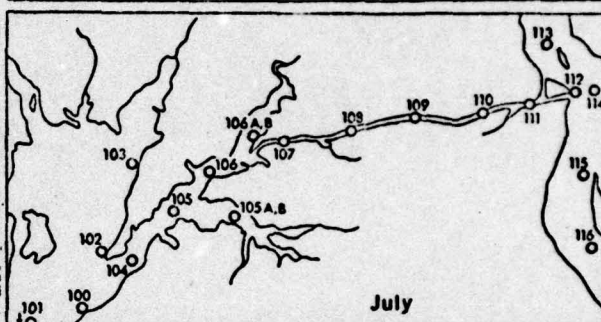
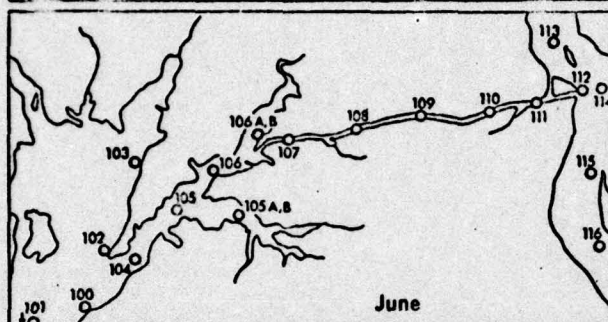
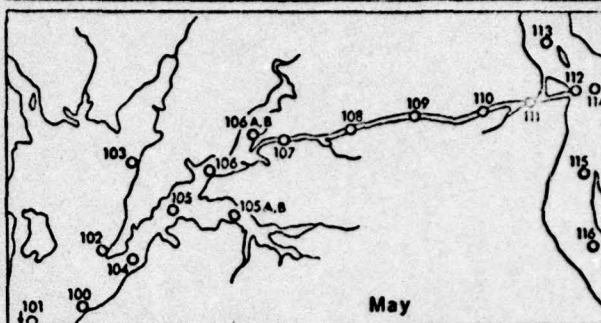
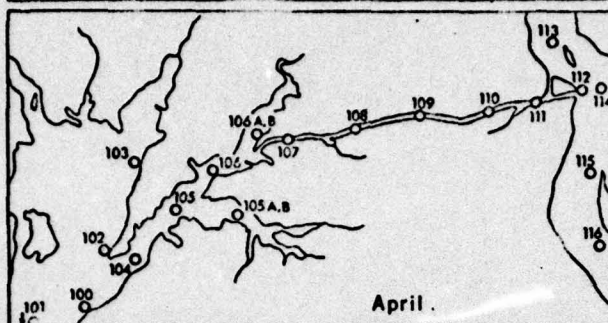
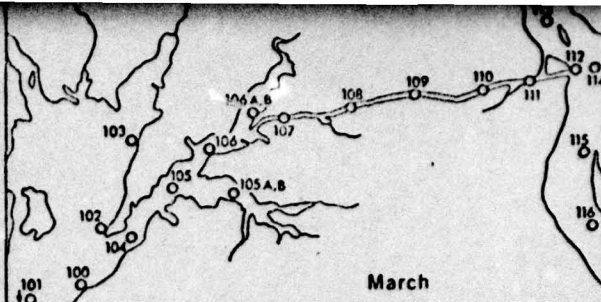
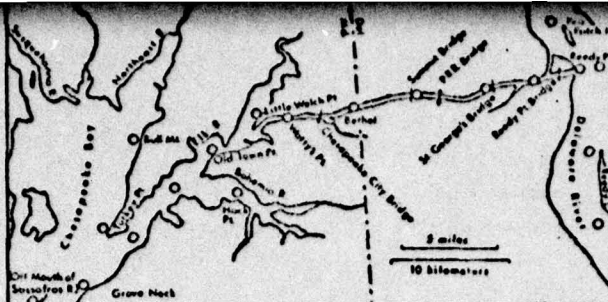


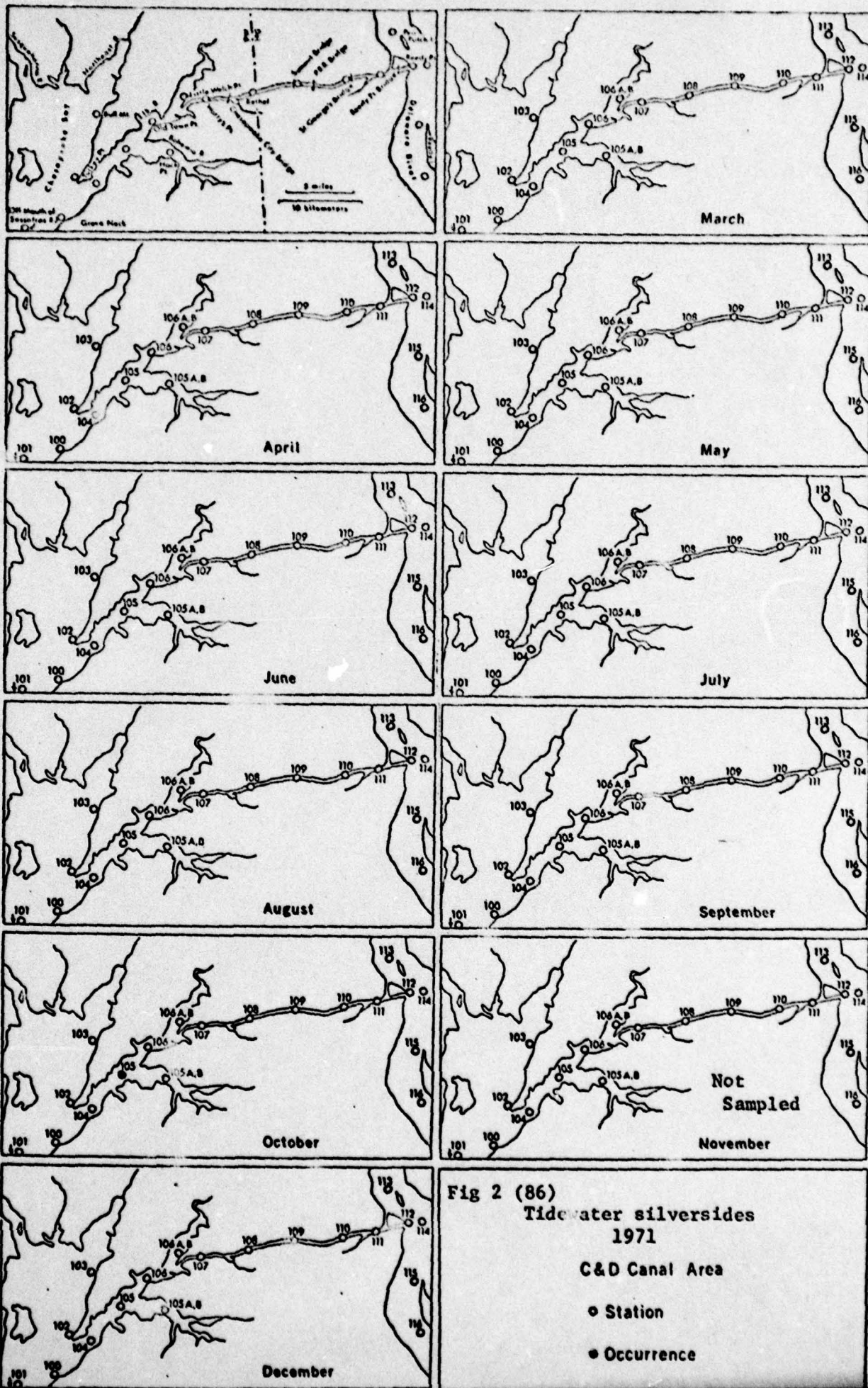
Fig 2(83). Striped bass  
1973  
C&D Canal Area

- Station
- Occurrence

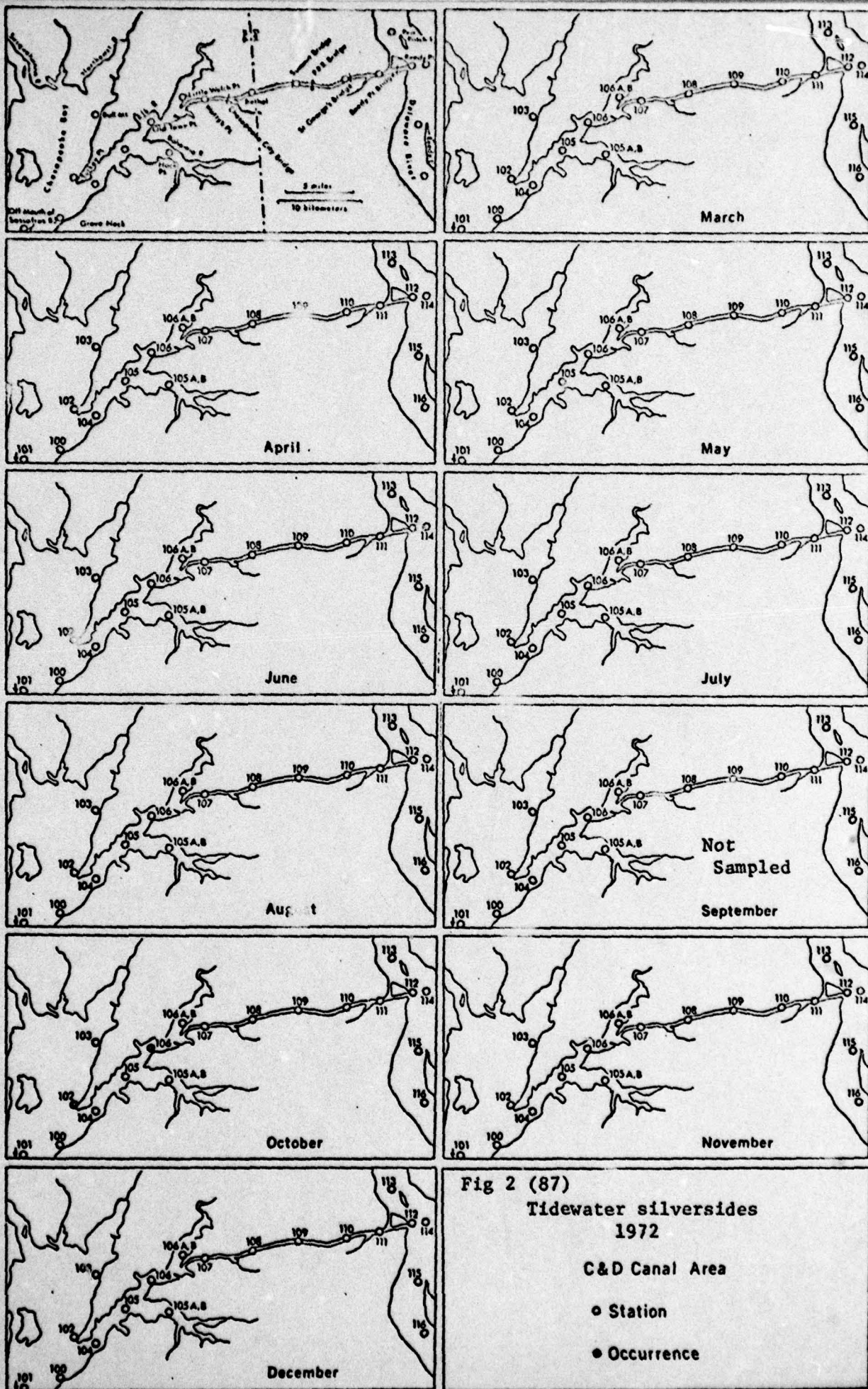












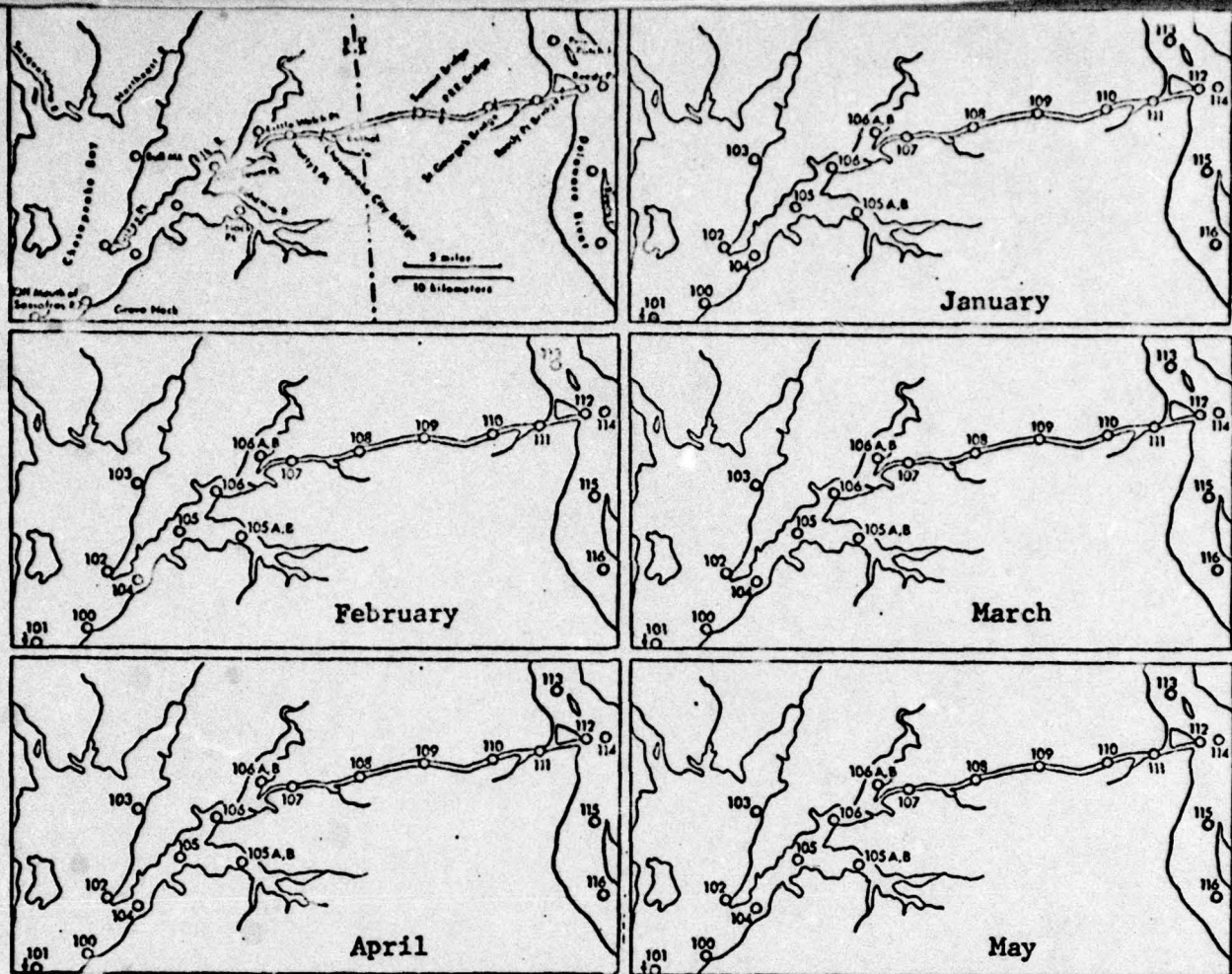
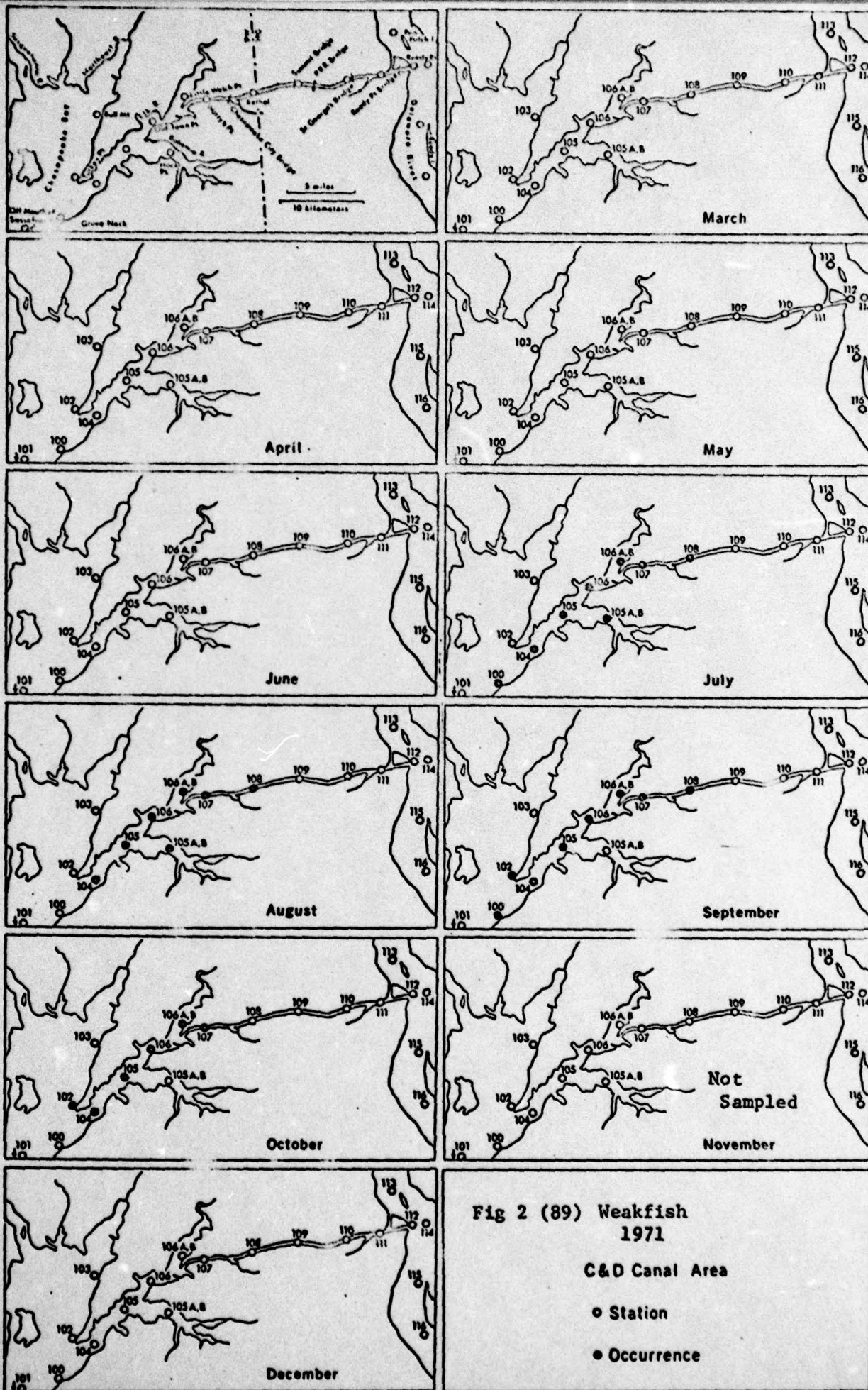
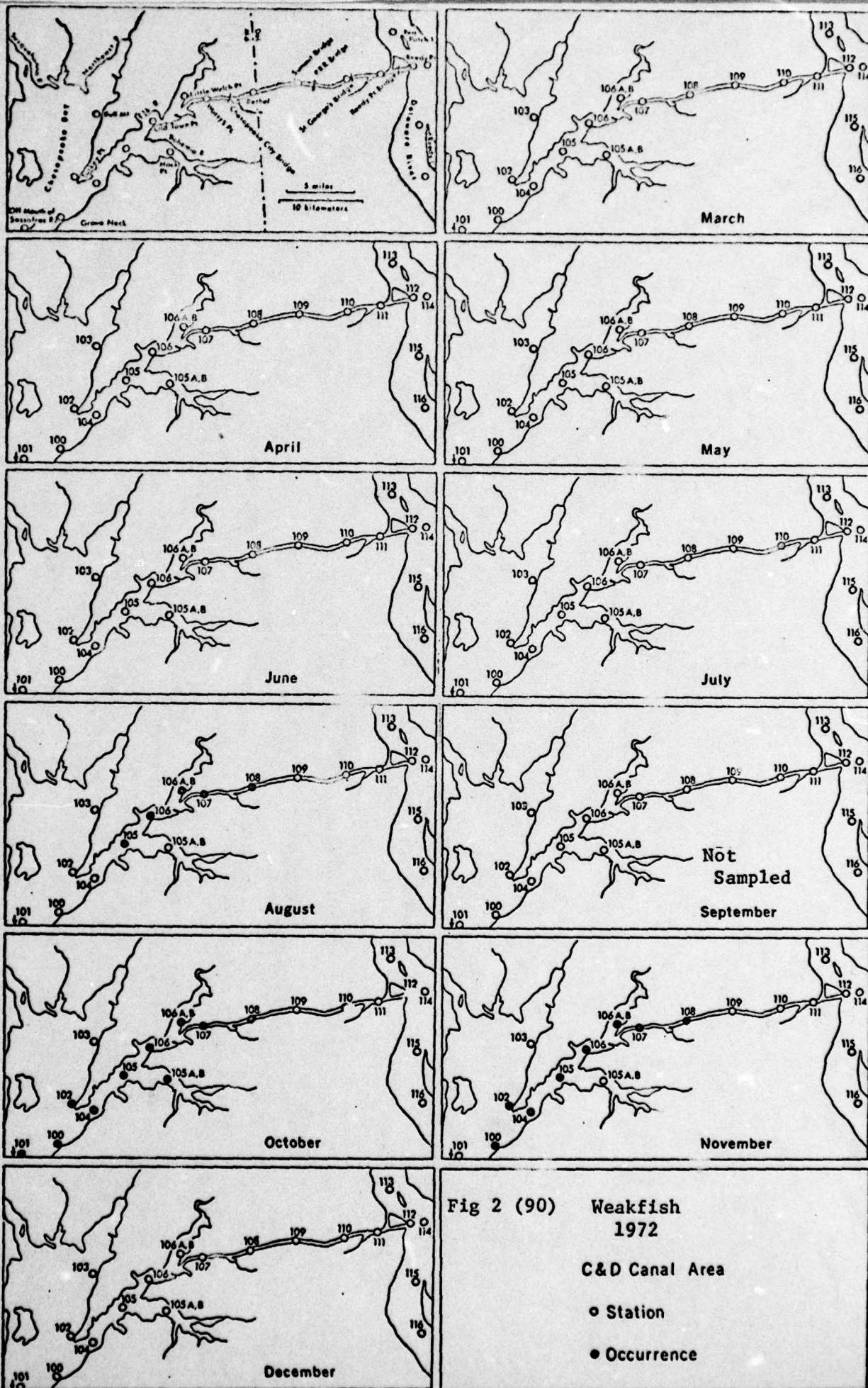


Fig 2 (88) Toadfish  
1973  
C&D Canal Area

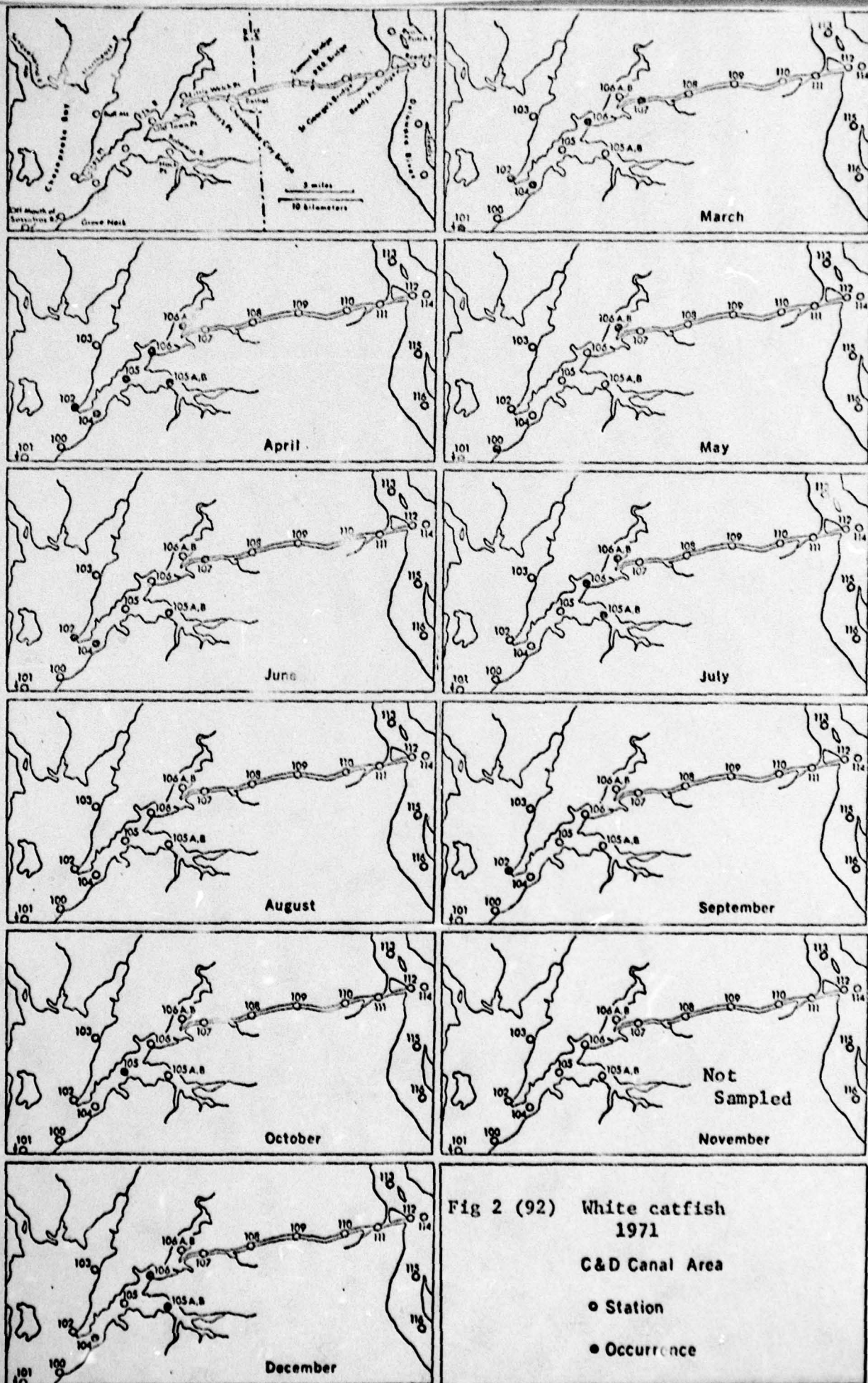




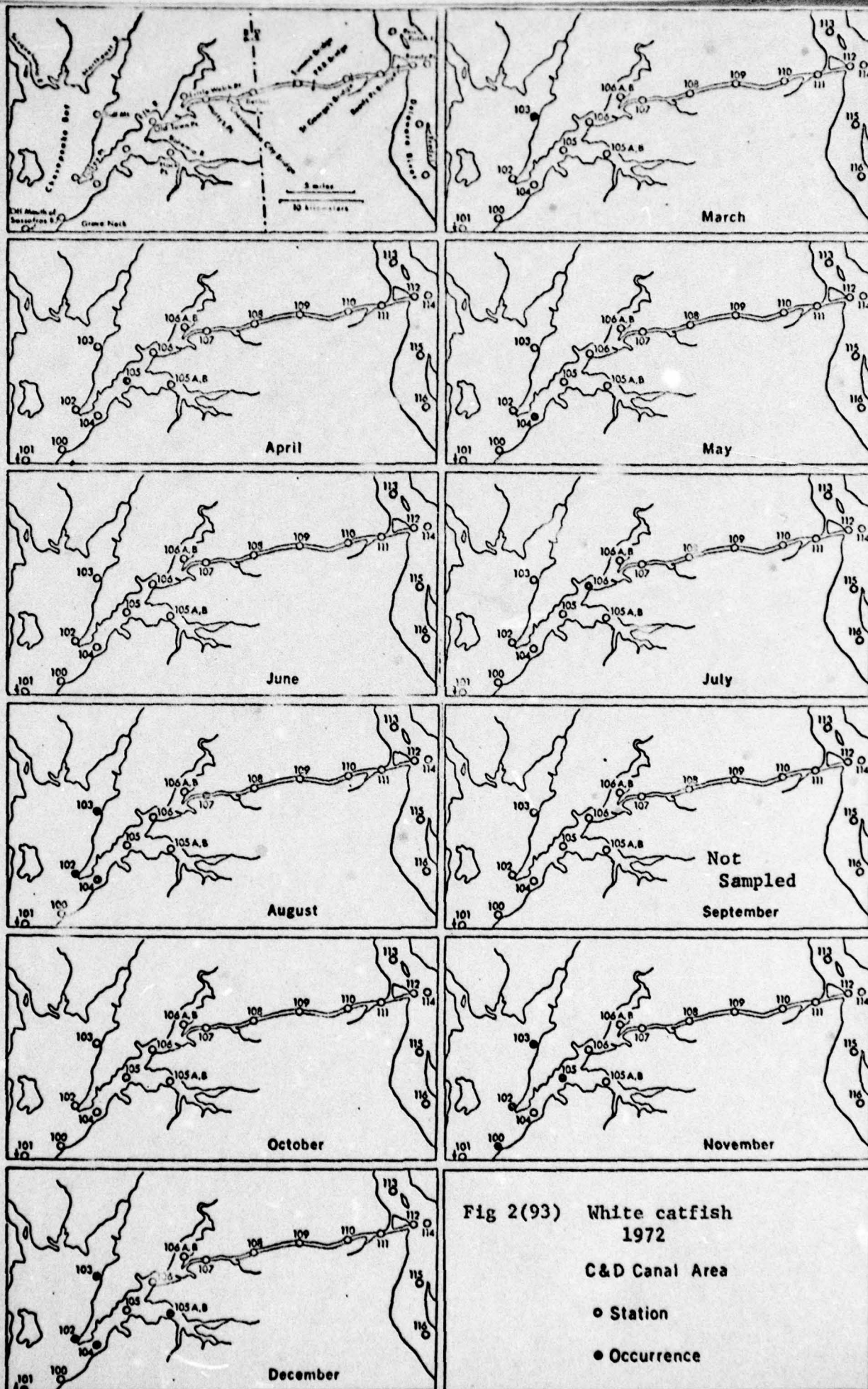












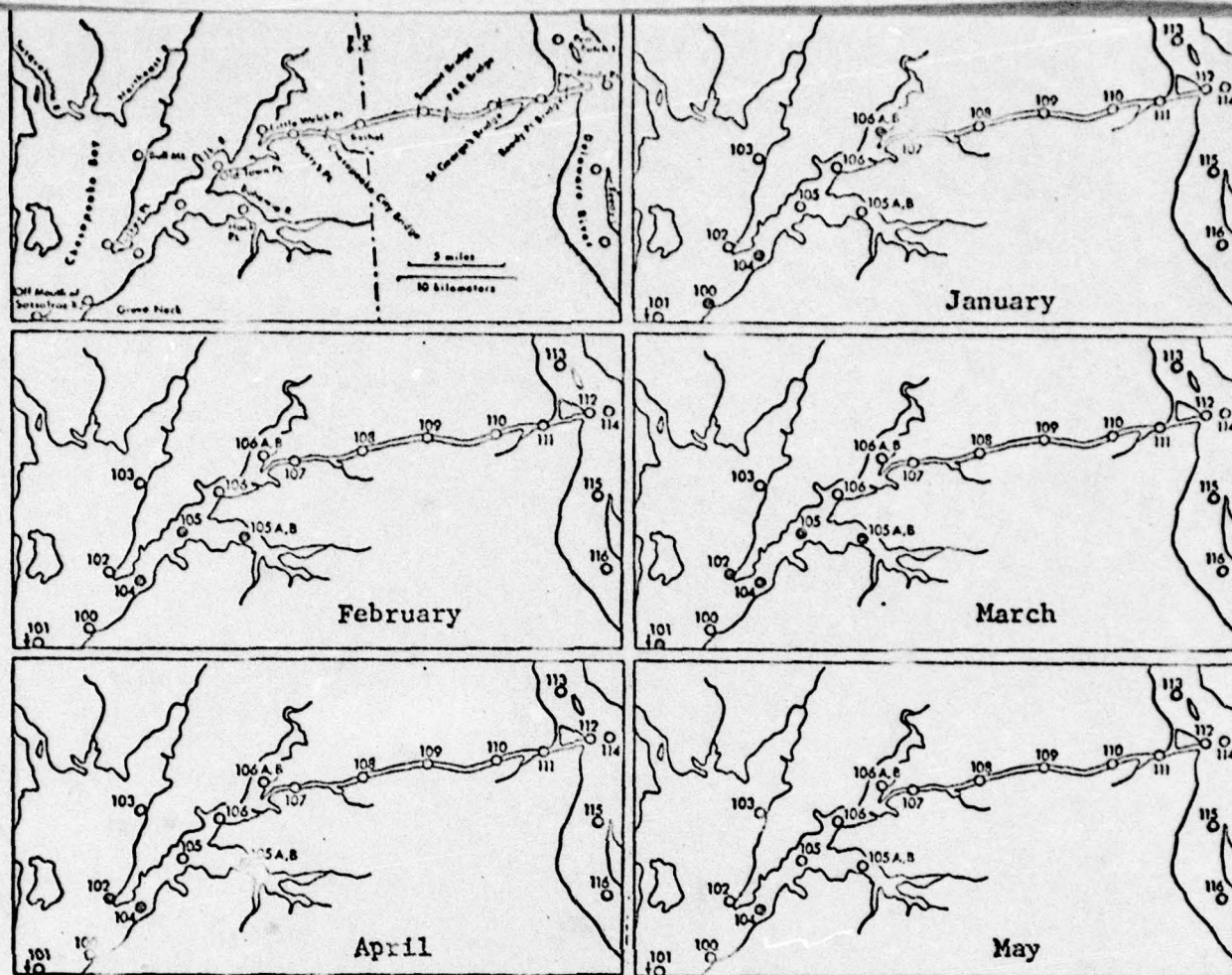
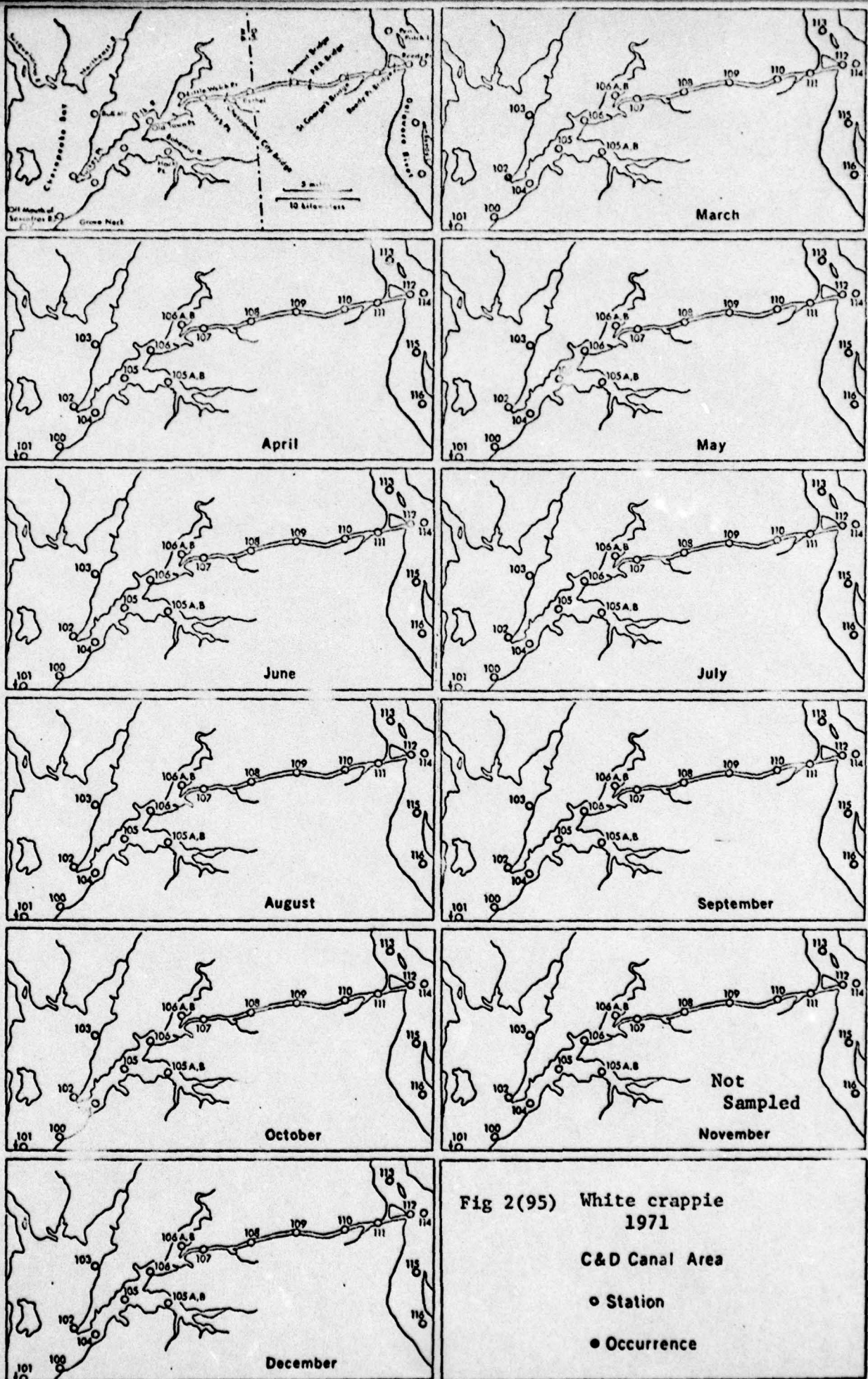
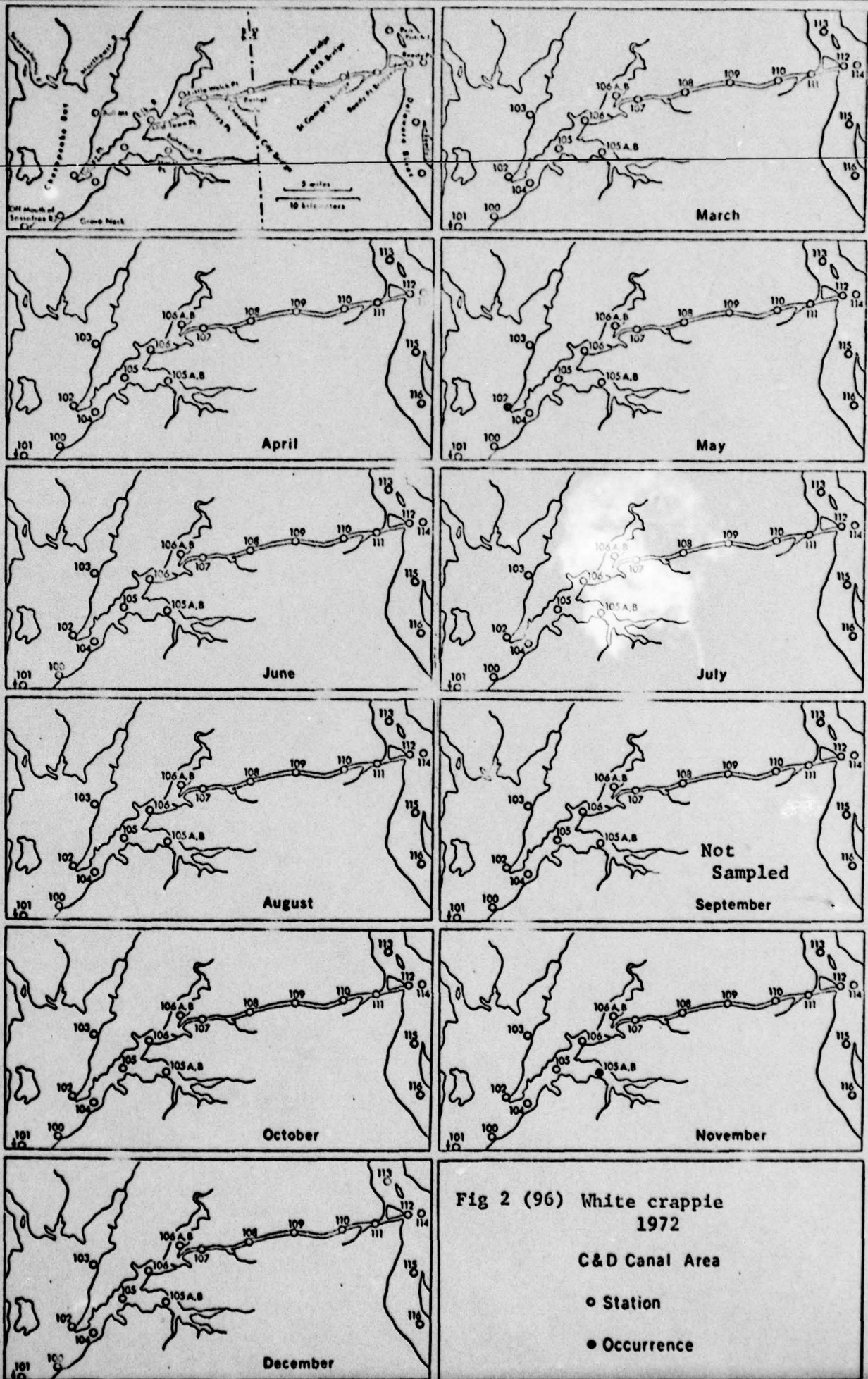


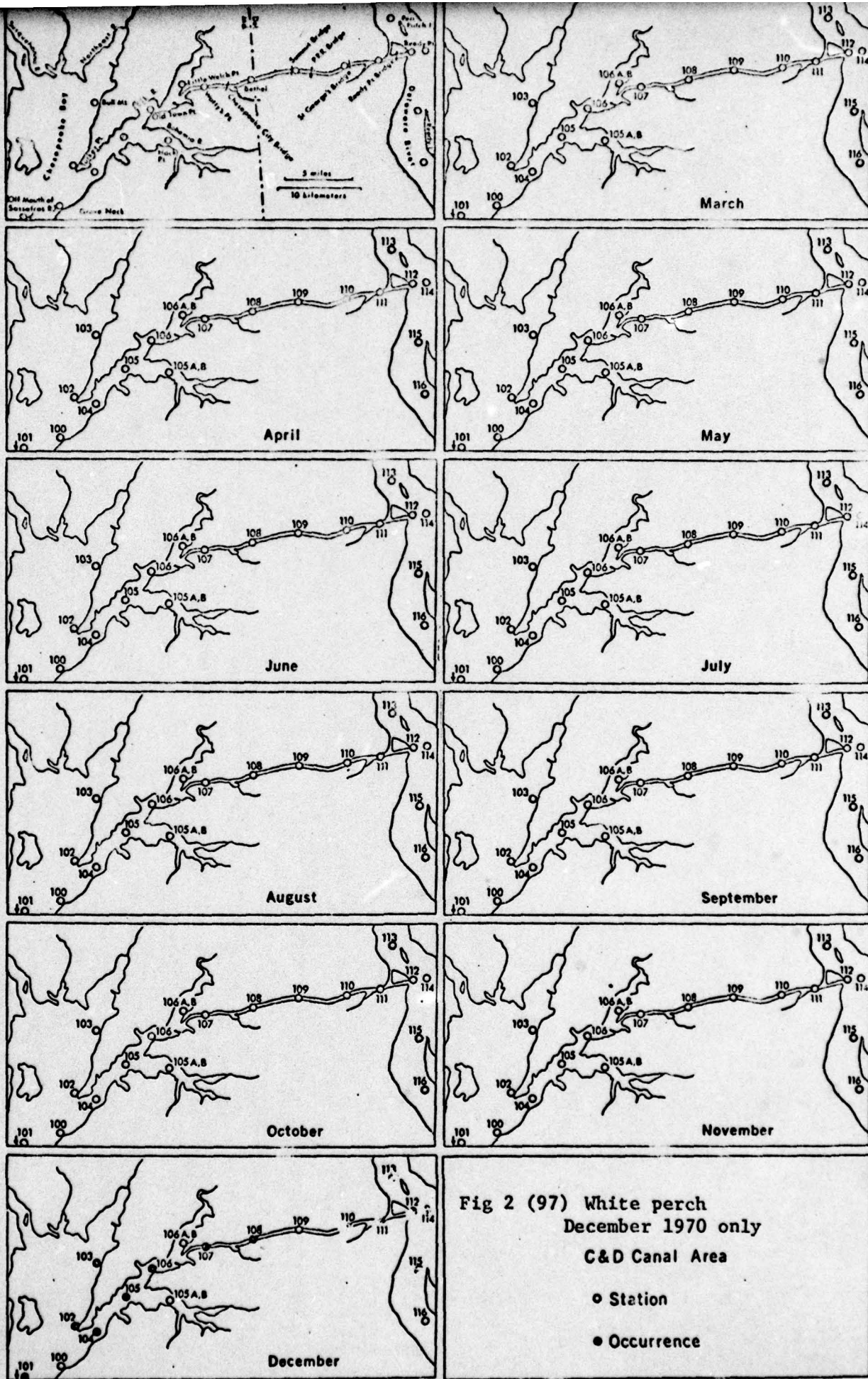
Fig 2 (94) White catfish  
1973  
C&D Canal Area

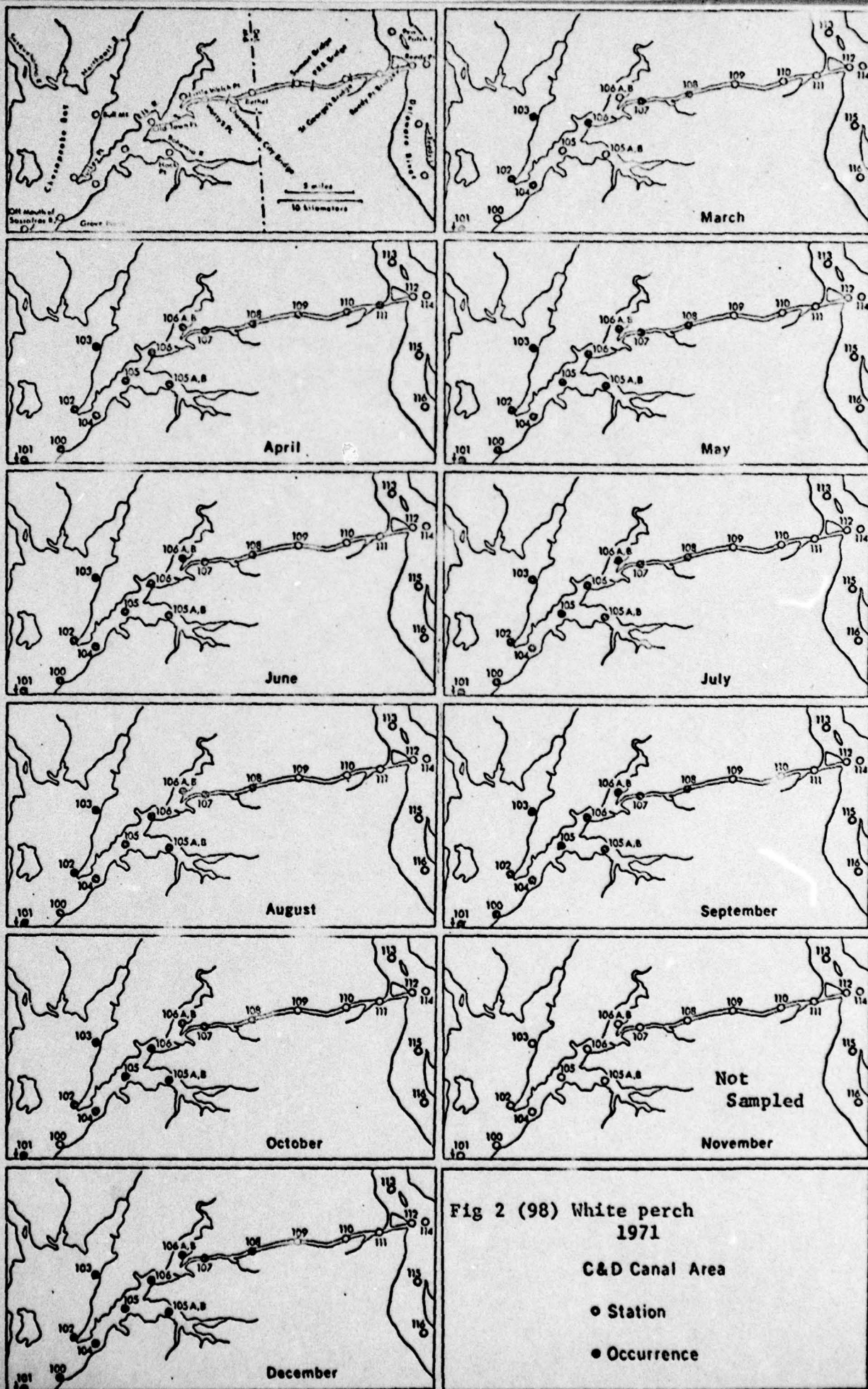




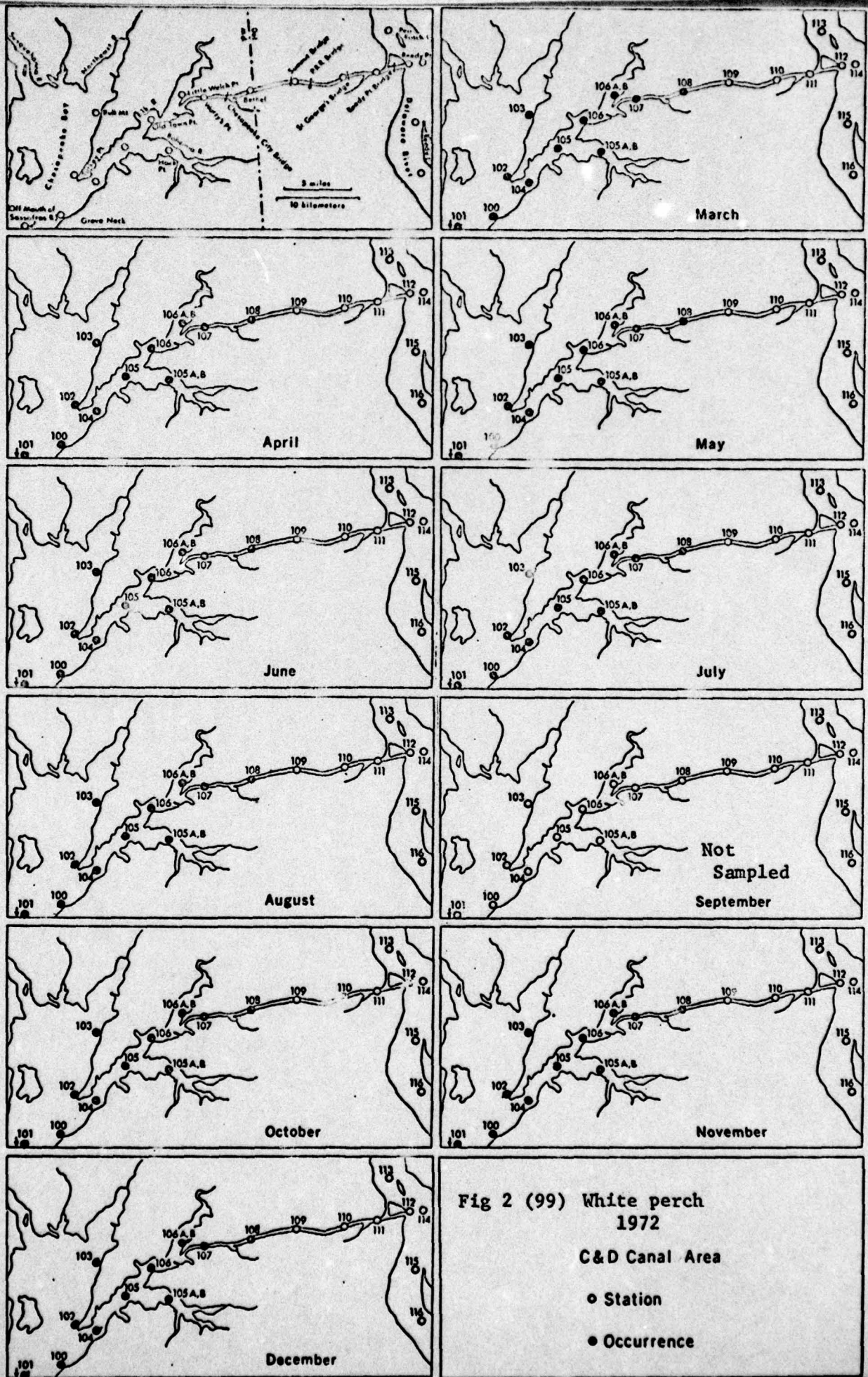












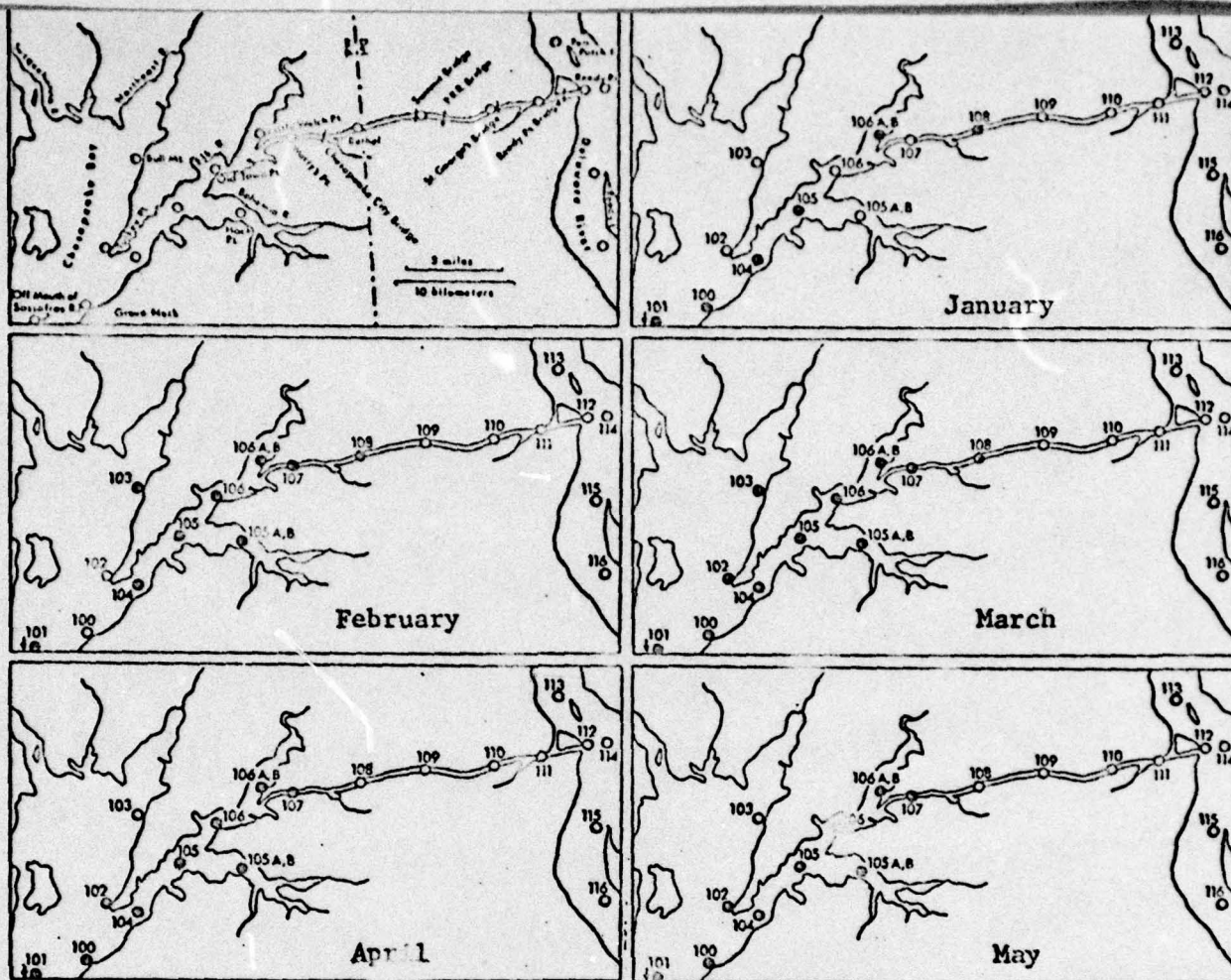


Fig 2 (100) White perch

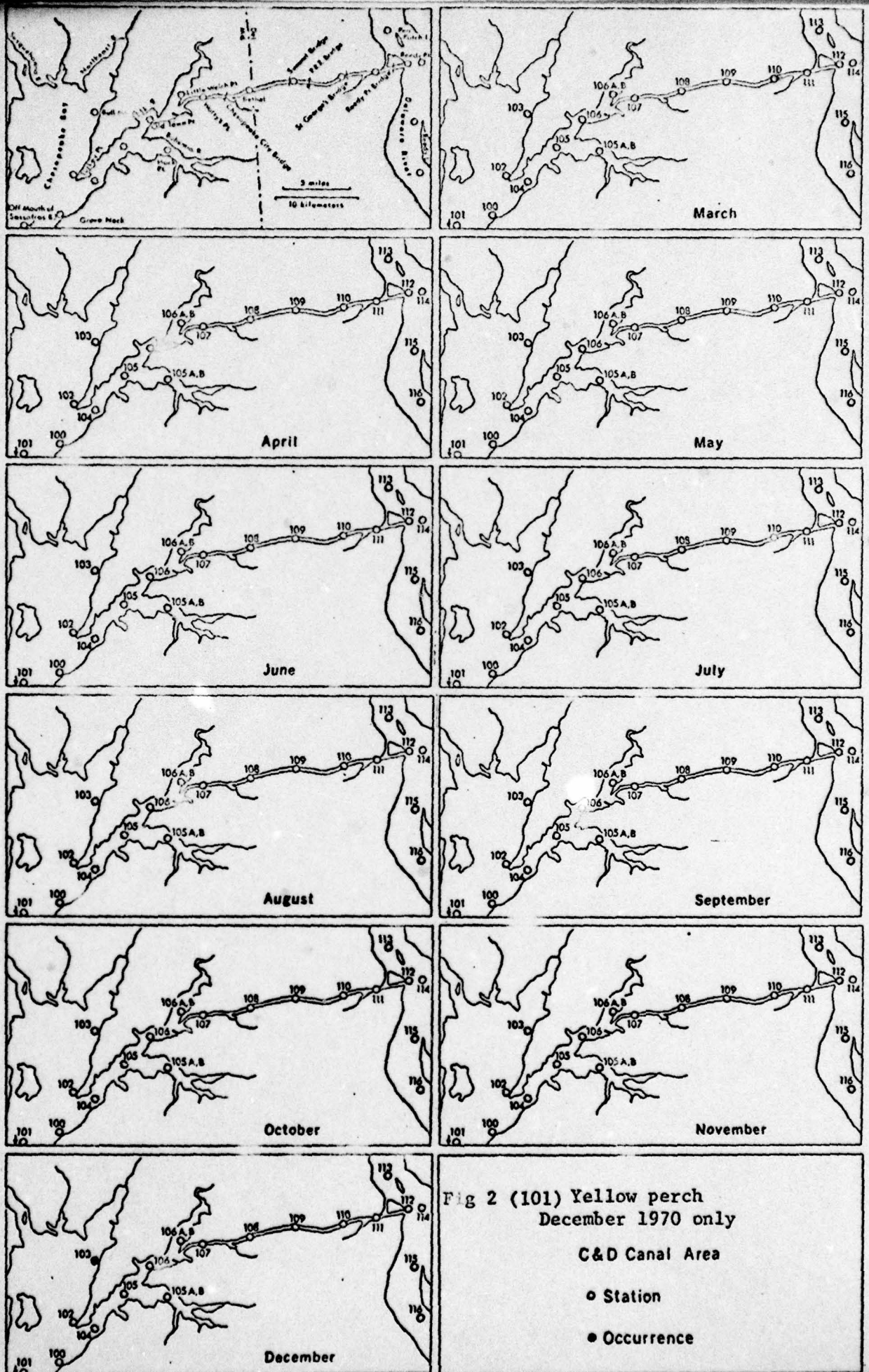
1973

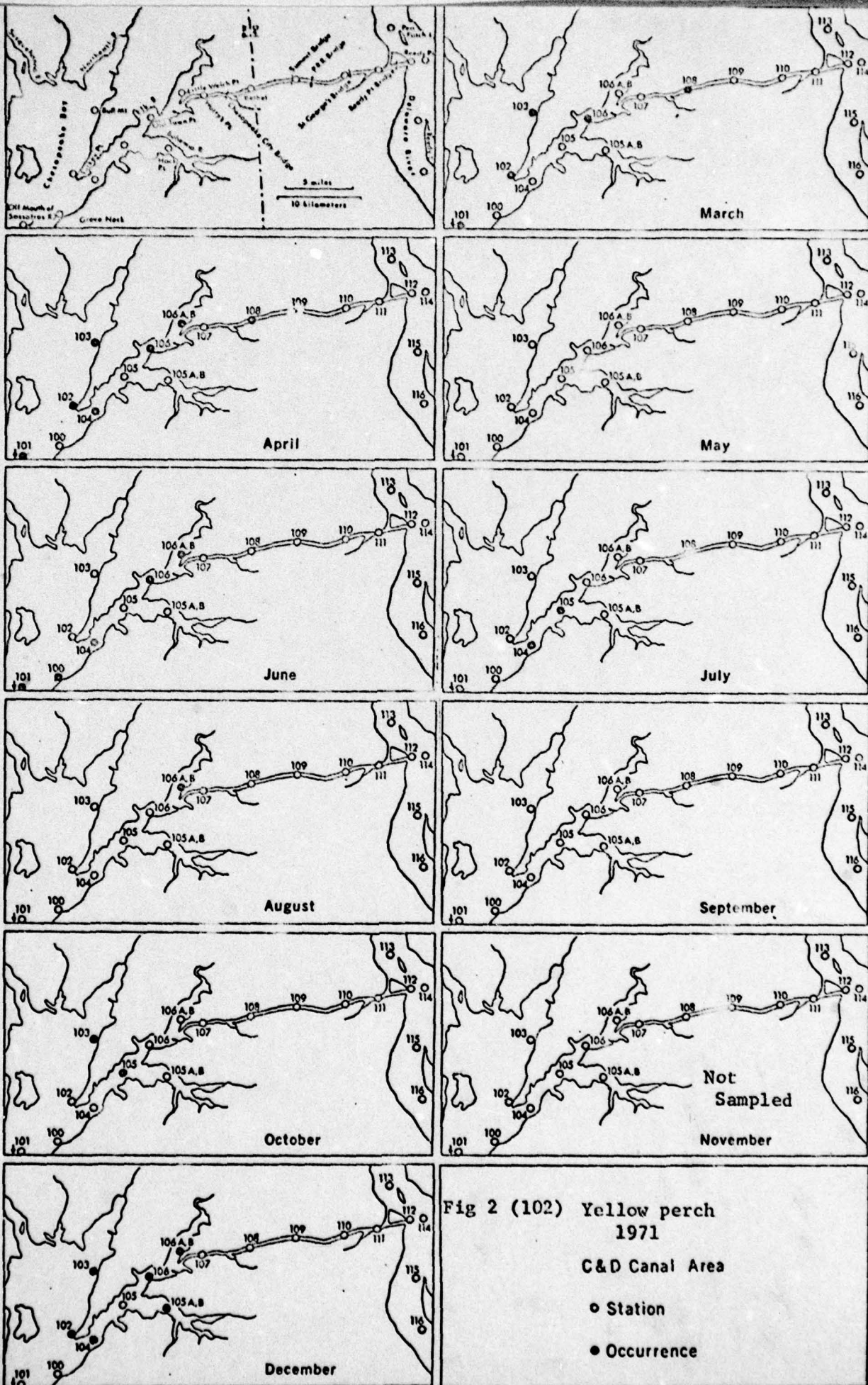
C&D Canal Area

○ Station

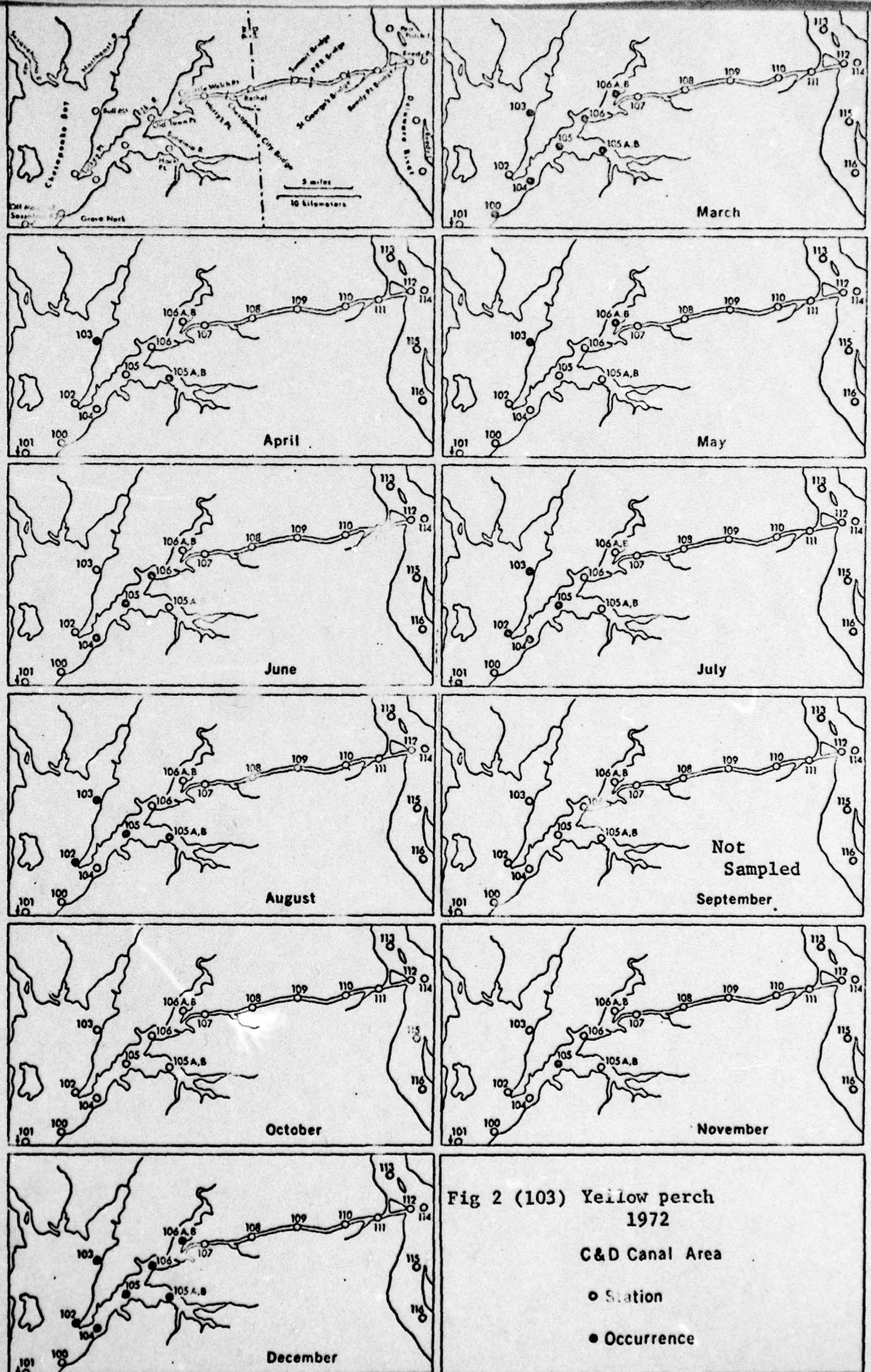
● Occurrence

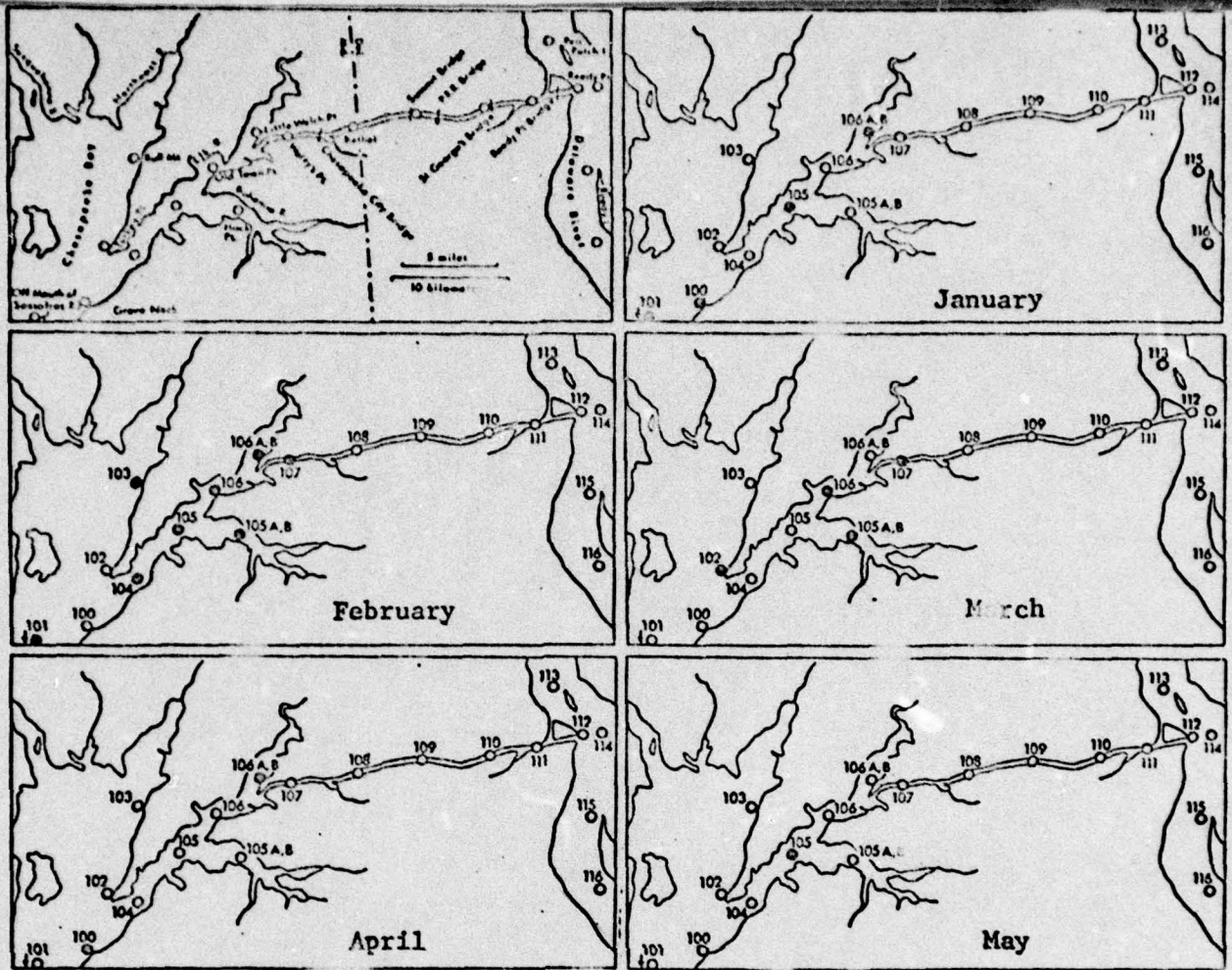




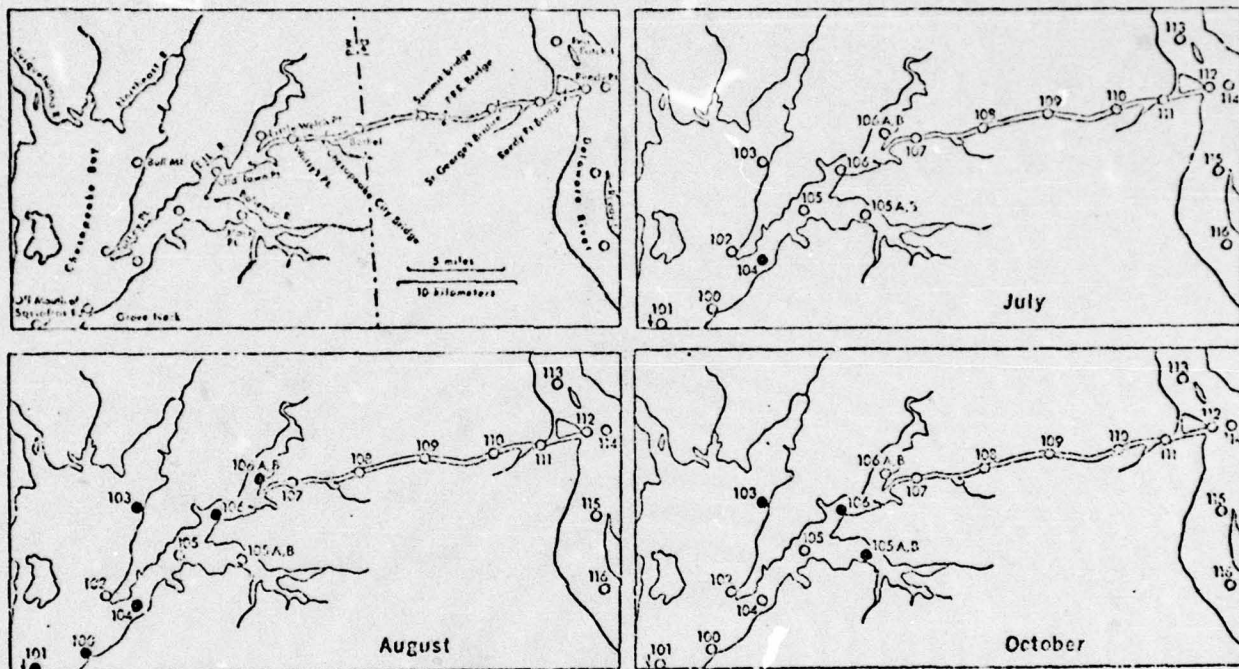












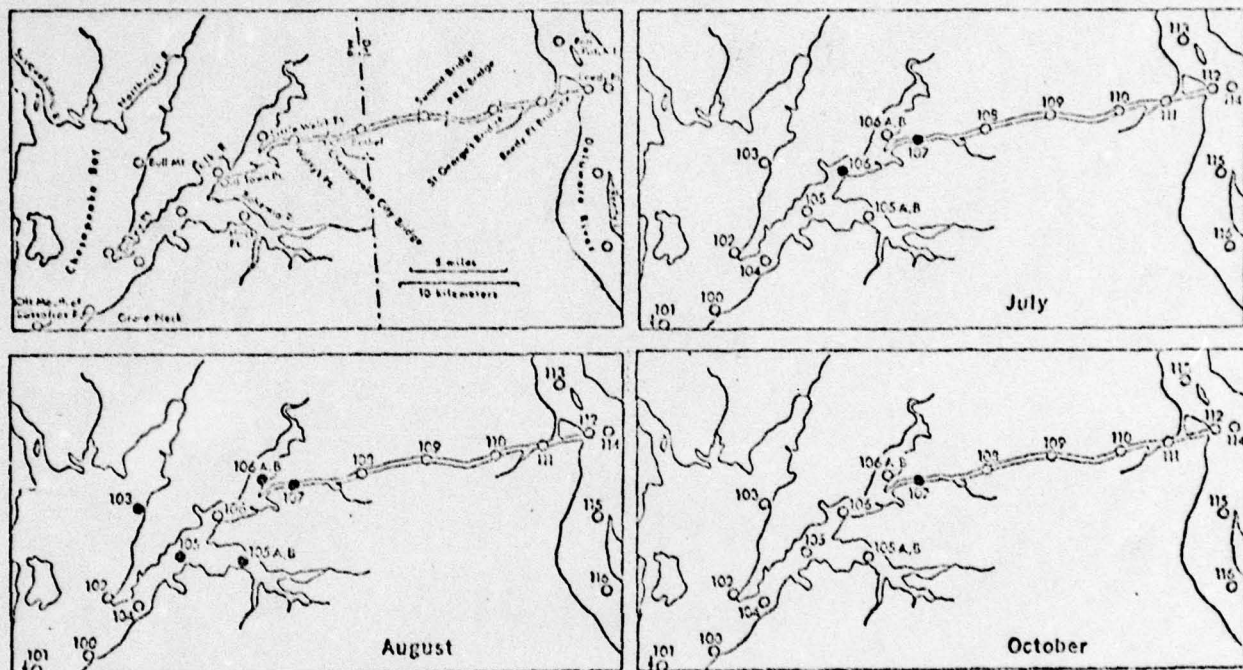


Fig 3 (2) American eel  
1972

C&D Canal Area

● Station

○ Occurrence



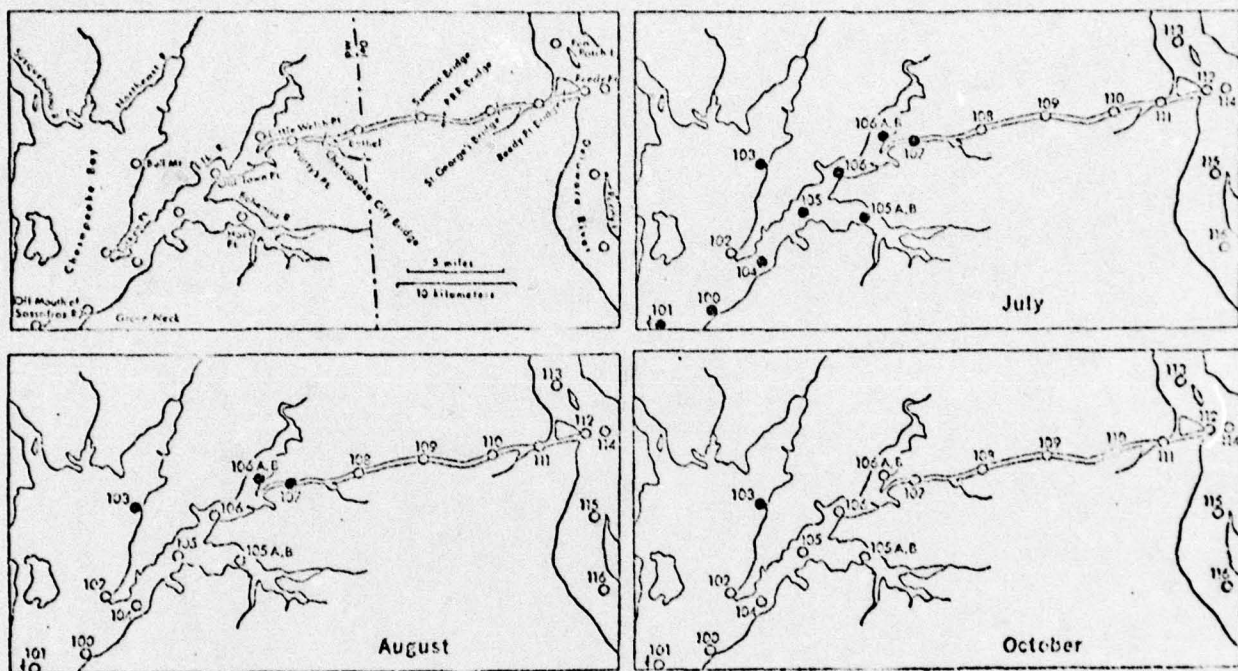


Fig 3 (3) Atlantic menhaden  
1972

C&D Canal Area

- Station
- Occurrence





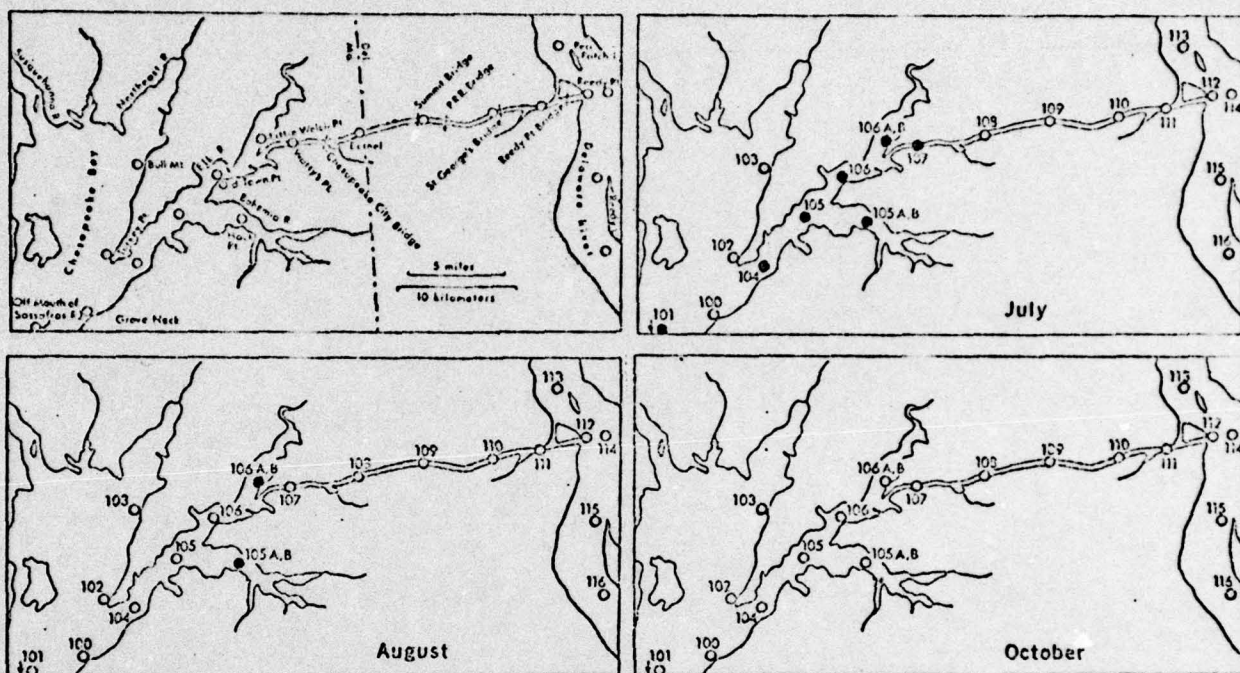


Fig 3(5) Banded killifish  
1972

C&D Canal Area

○ Station

● Occurrence

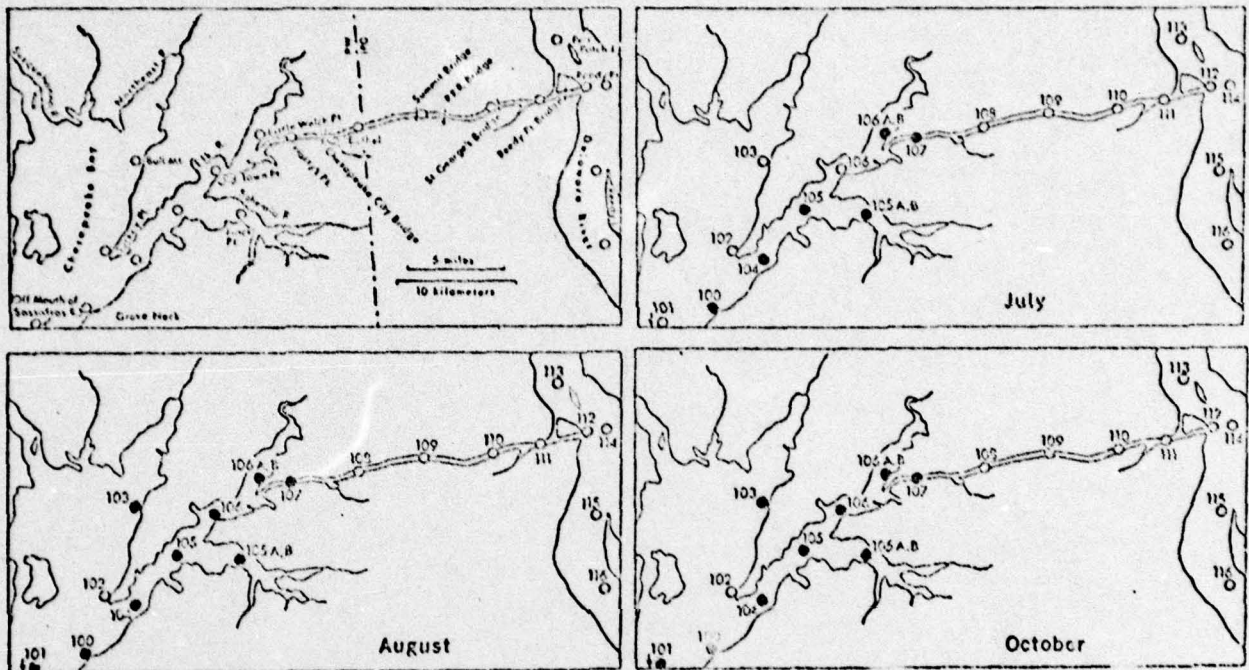


Fig 3(6) Bay anchovy  
1972

C&D Canal Area

○ Station

● Occurrence



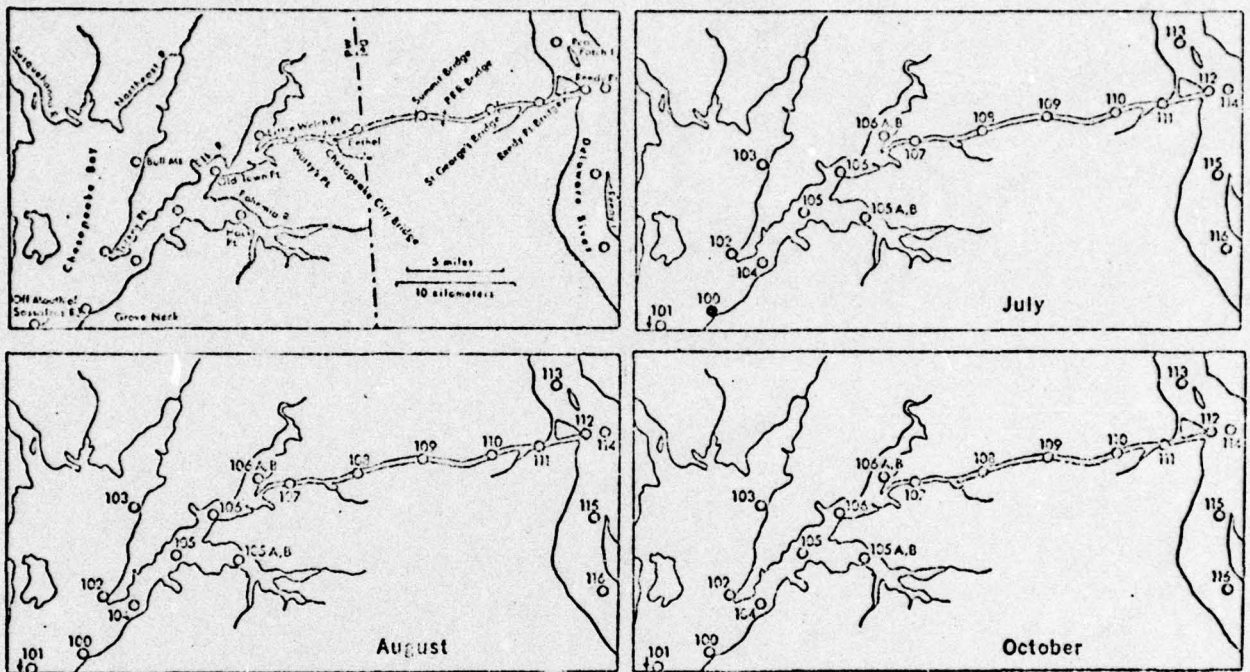
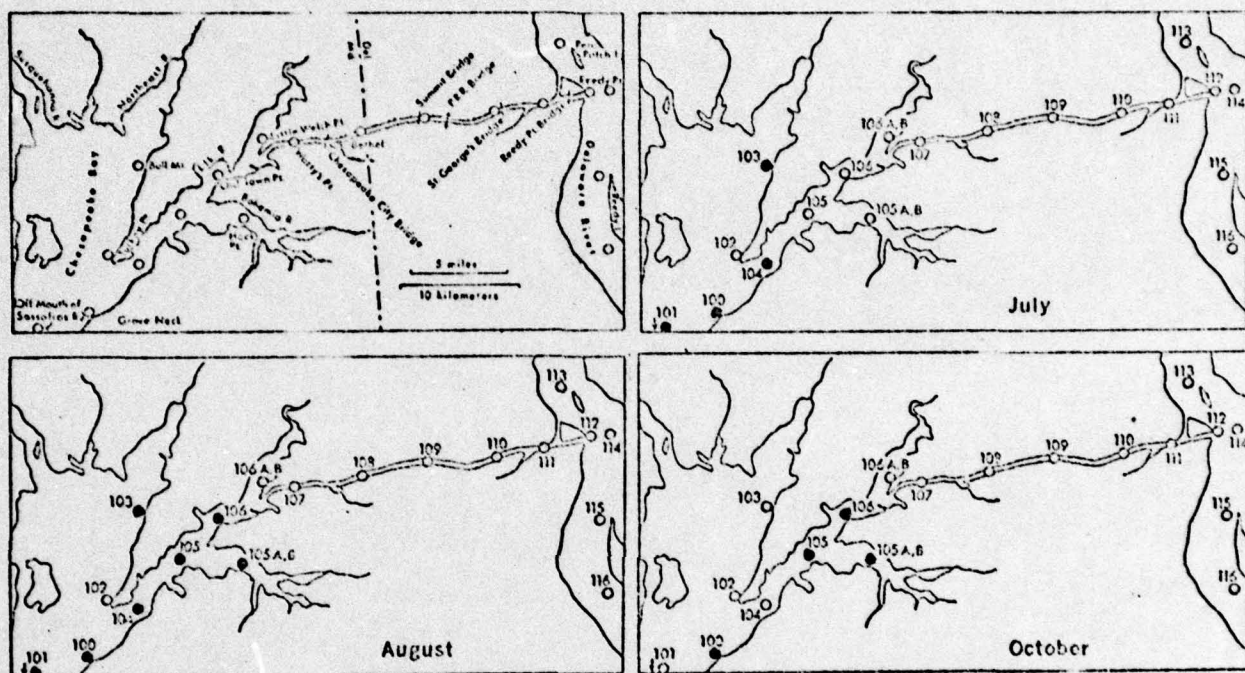


Fig 3(7) Black bass  
1972

C&D Canal Area

• Station

• Occurrence





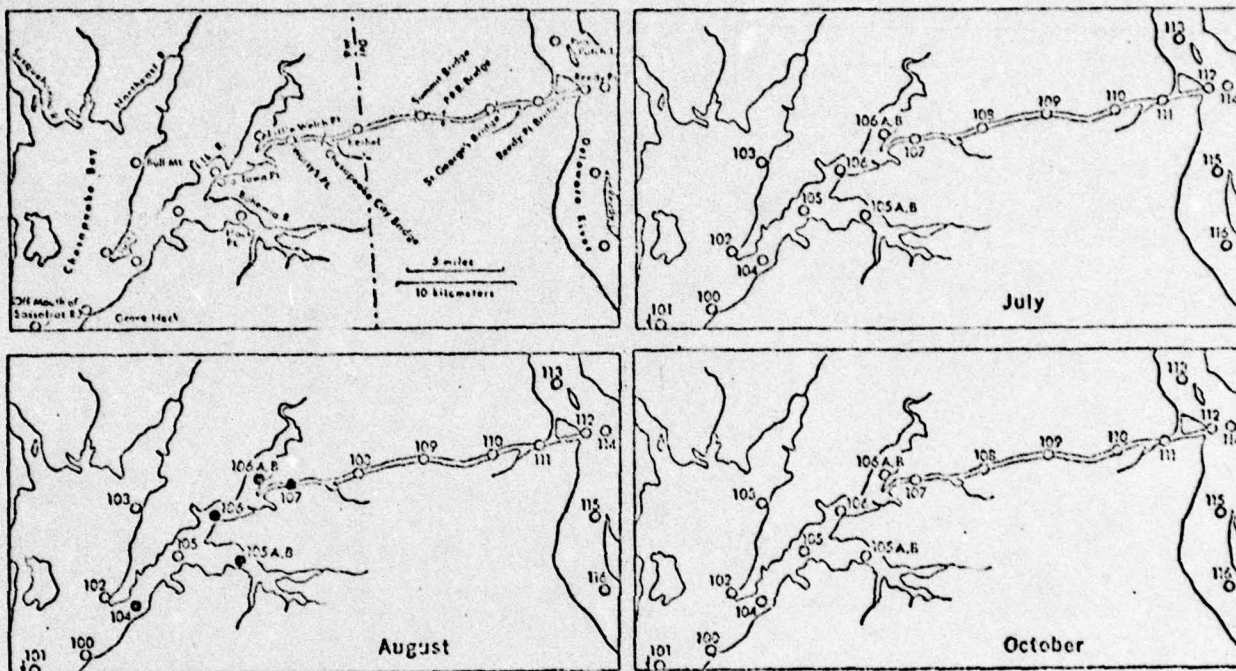
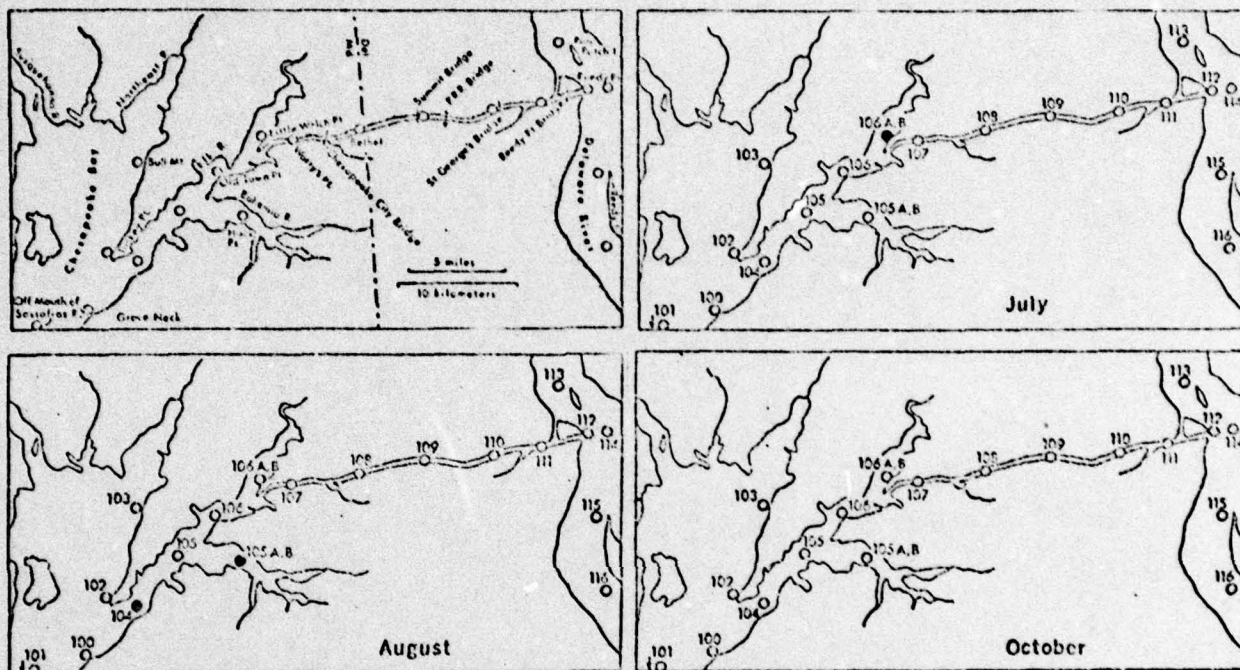


Fig 3(9) Channel catfish  
1972

C&D Canal Area

- Station
- Occurrence



**Fig 3(10) Gizzard shad  
1972**

**C&D Canal Area**

○ Station

● Occurrence



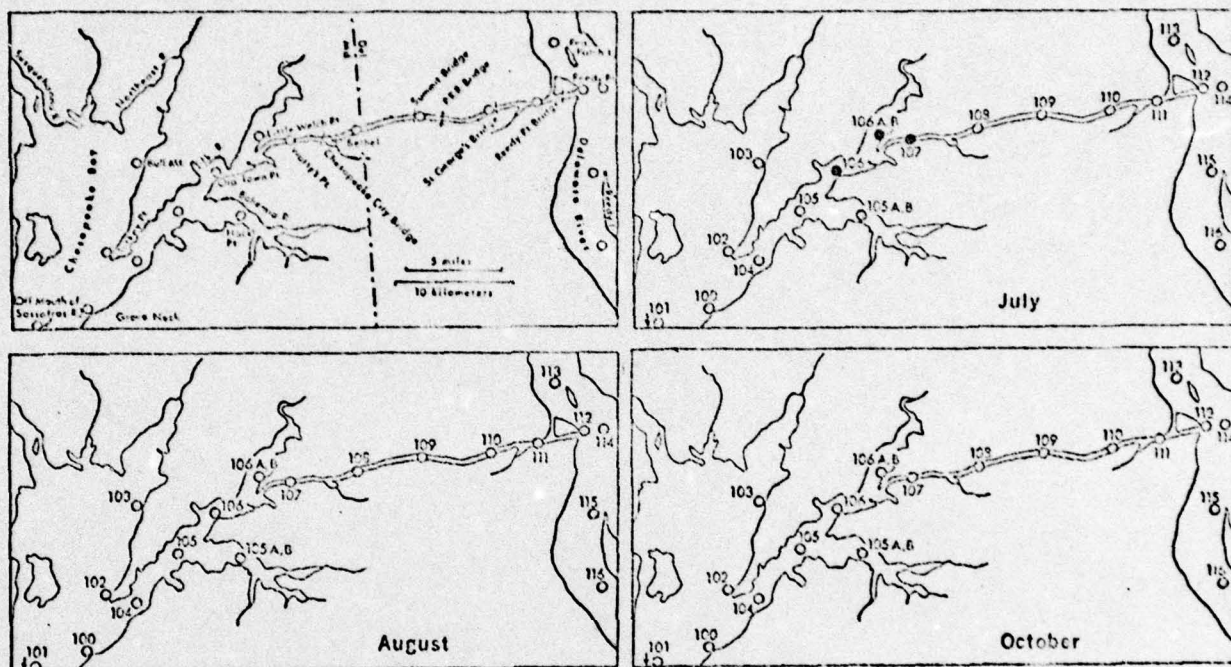


Fig 3(11) Golden shiner  
1972

### C&D Canal Area

• Station

- Occurrence

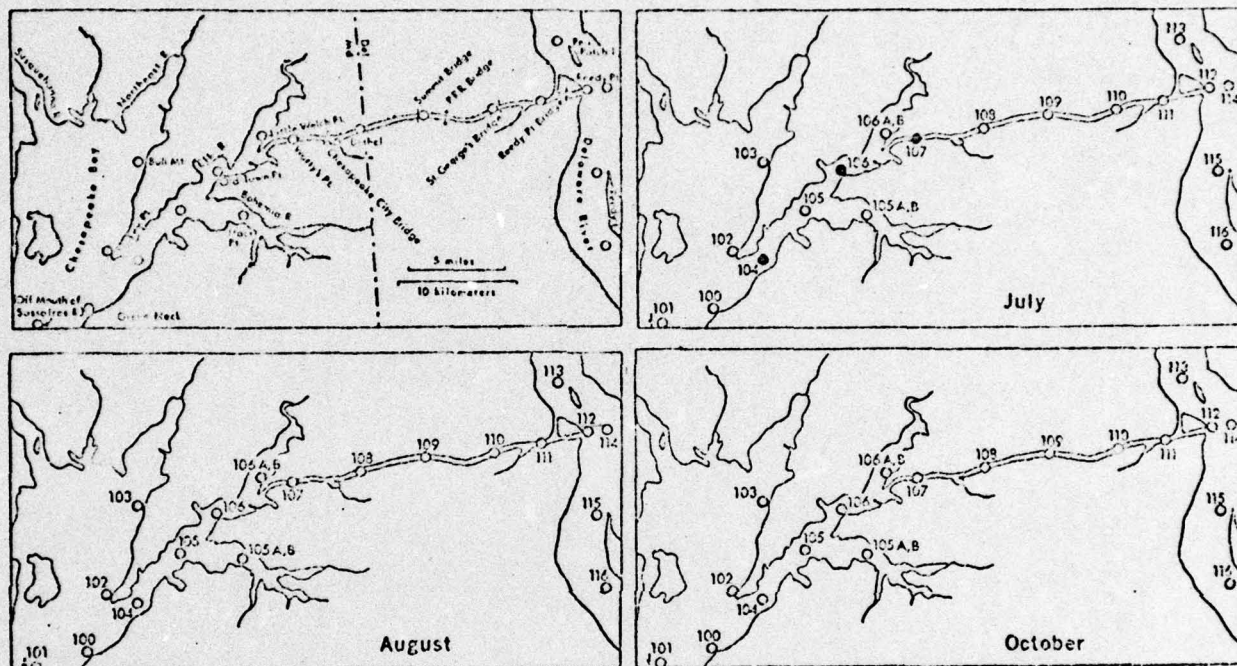


Fig 3(12) Hogchoker  
1972

C&D Canal Area

○ Station

● Occurrence



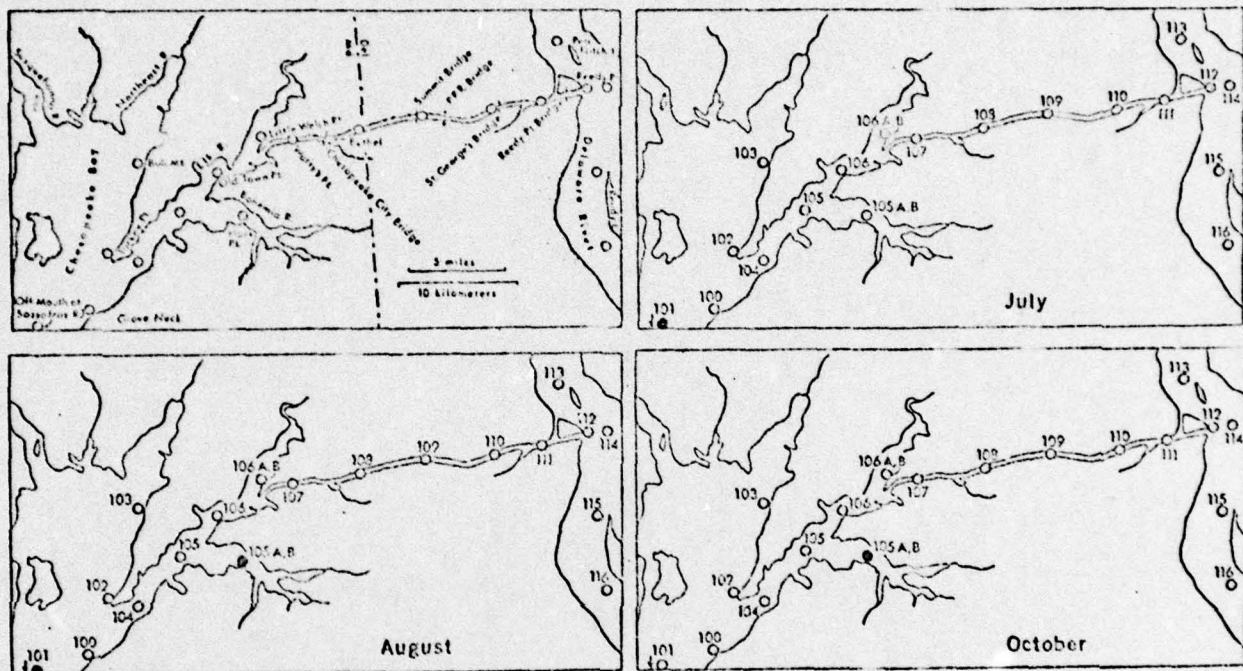


Fig 3 (13) Johnny darter  
1972

C&D Canal Area

○ Station

● Occurrence

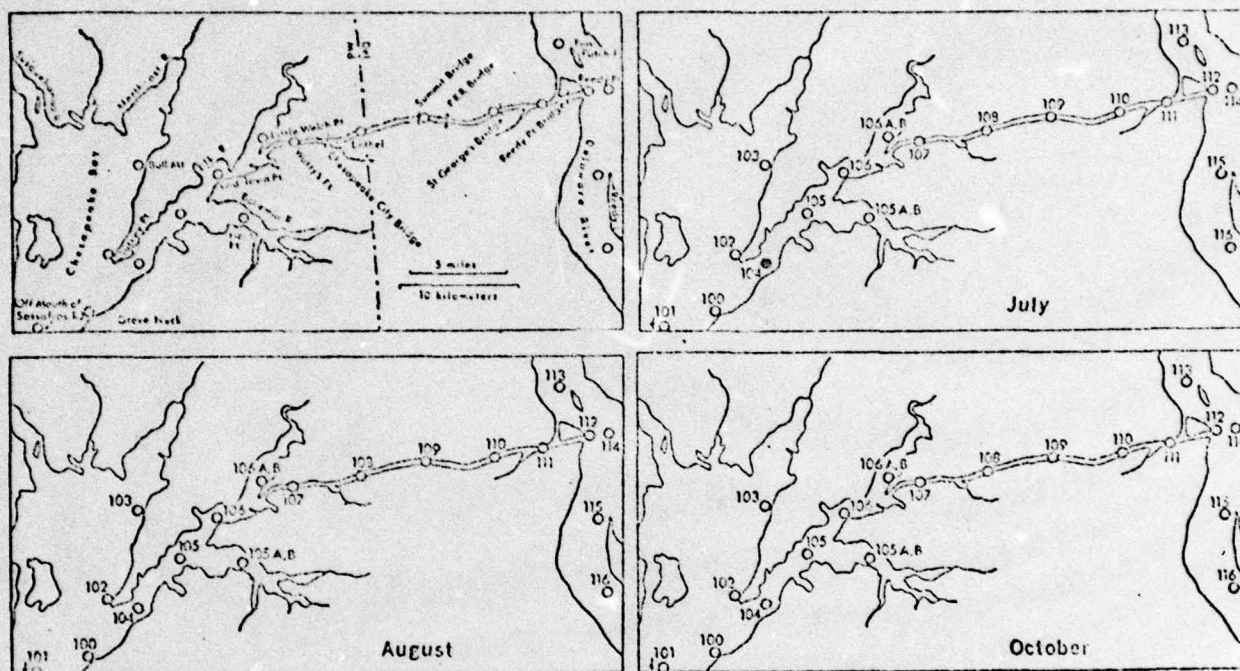


Fig 3 (14) Largemouth bass  
1972

C&D Canal Area

◦ Station

◦ Occurrence



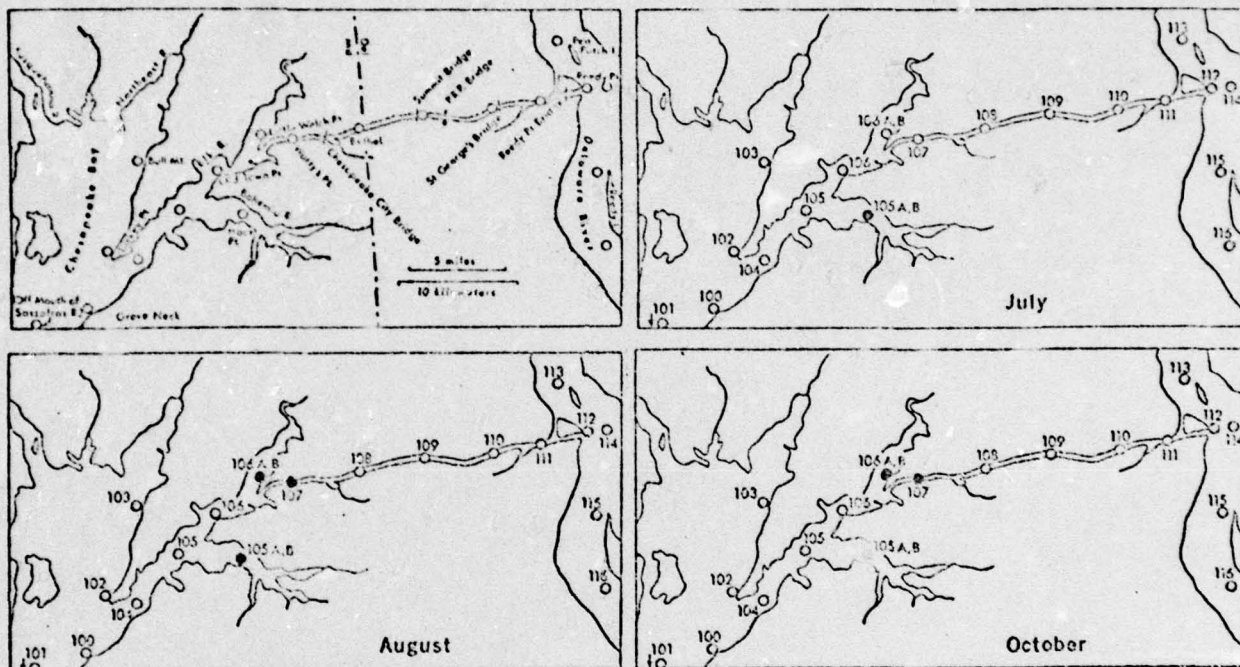


Fig 3 (15) Mummichog  
1972

C&D Canal Area

○ Station

● Occurrence

AD-A073 695

MARYLAND UNIV SOLOMONS NATURAL RESOURCES INST

F/G 8/8

HYDROGRAPHIC AND ECOLOGICAL EFFECTS OF ENLARGEMENT OF THE CHESA--ETC(U)

SEP 73 D E RITCHIE, T S KOO

DACW61-71-C-0062

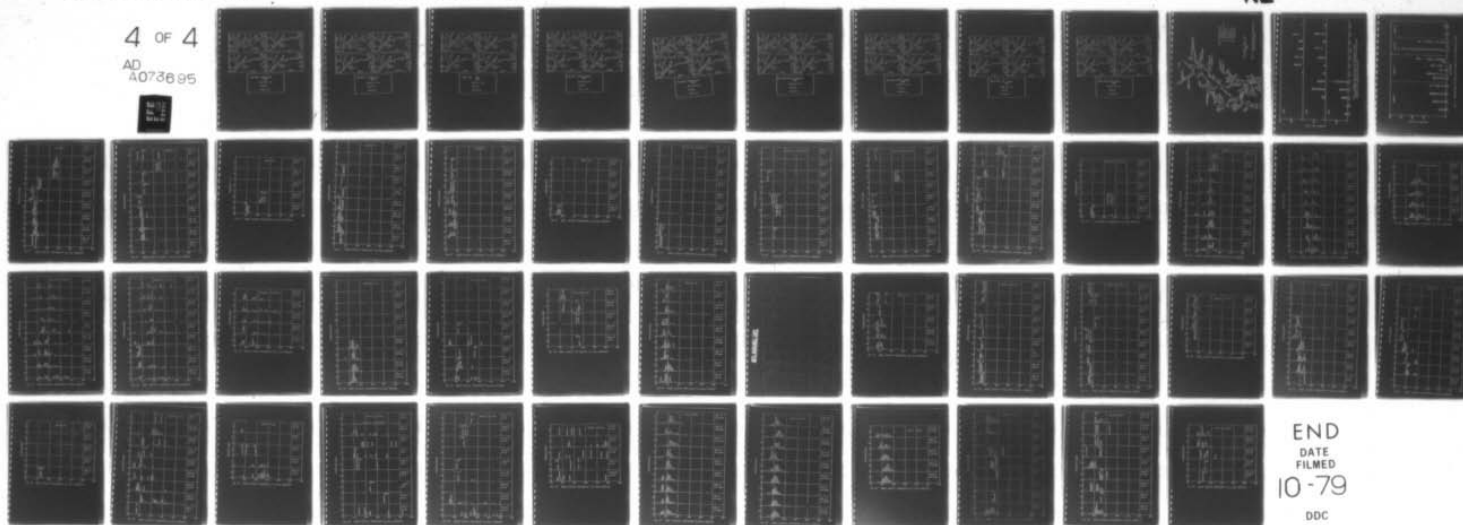
UNCLASSIFIED

NRI-REF-74-71

NL

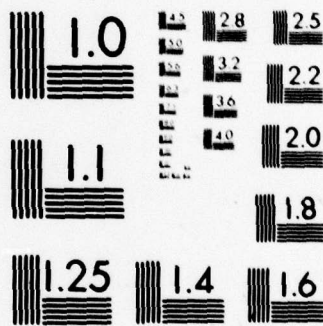
4 OF 4

AD  
A073695



END  
DATE  
FILMED  
10-79  
DDC





MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A





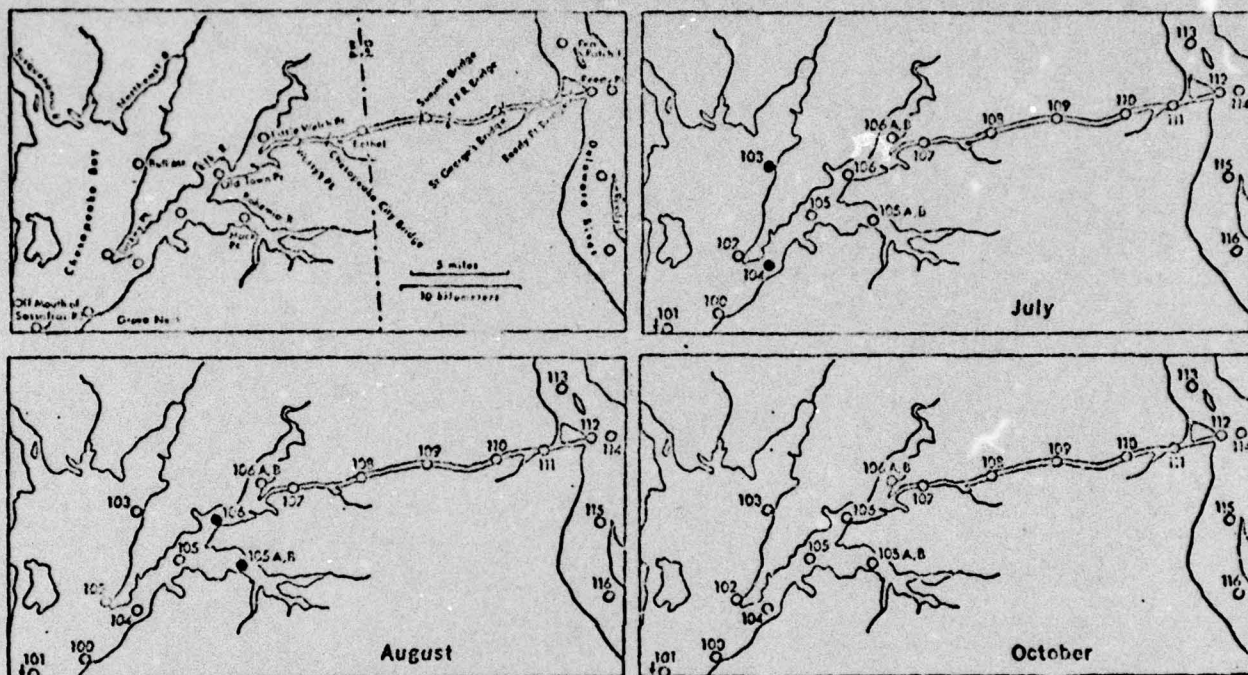
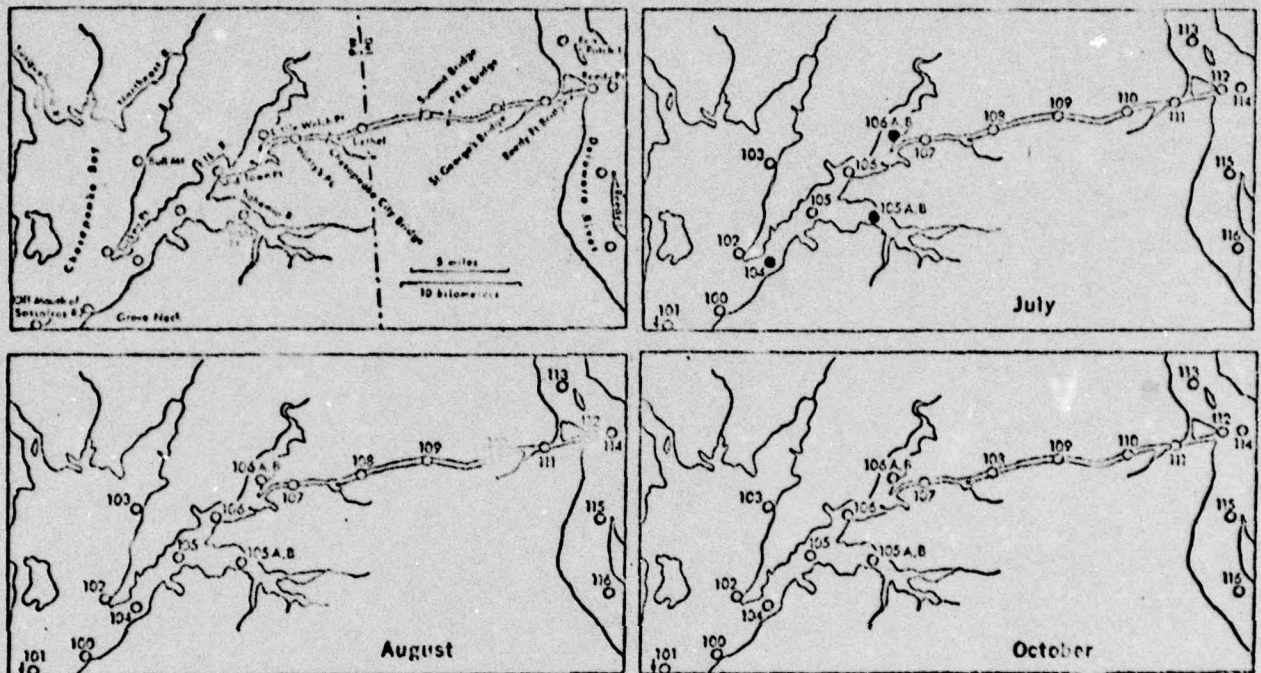


Fig 3(17) Scaled carp  
1972

C&D Canal Area

• Station

• Occurrence

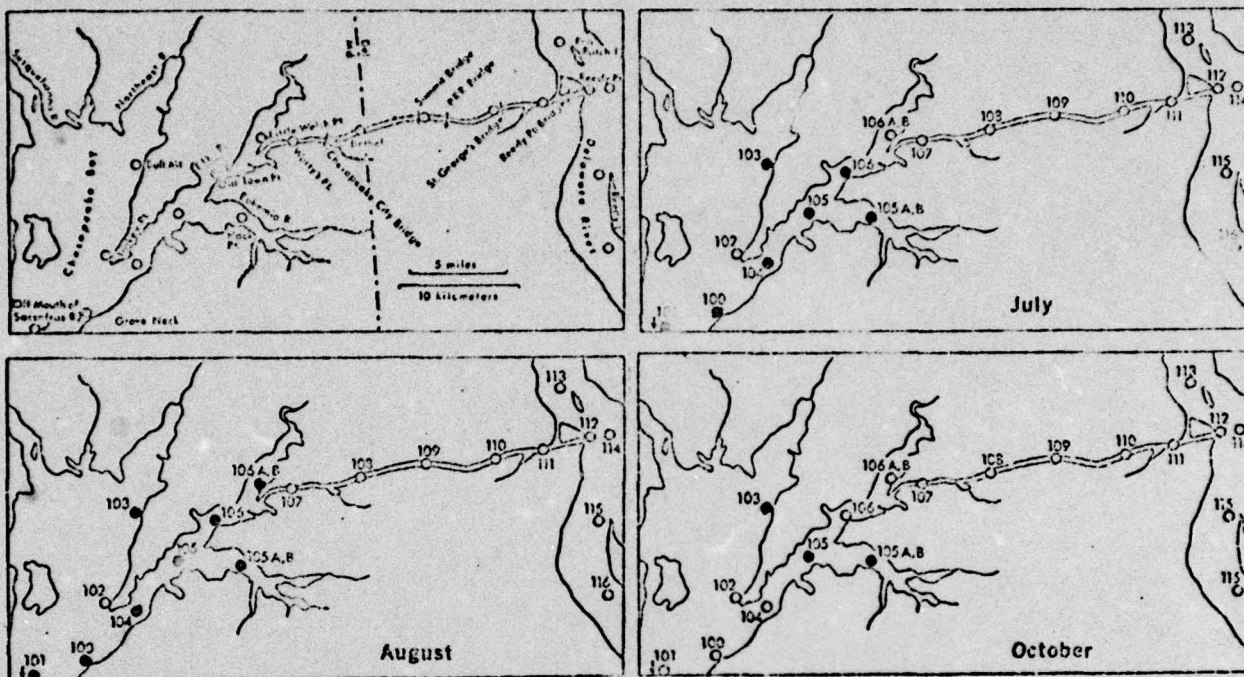


**Fig 3 (18) Spot  
1972**

**C&D Canal Area**

- Station
- Occurrence



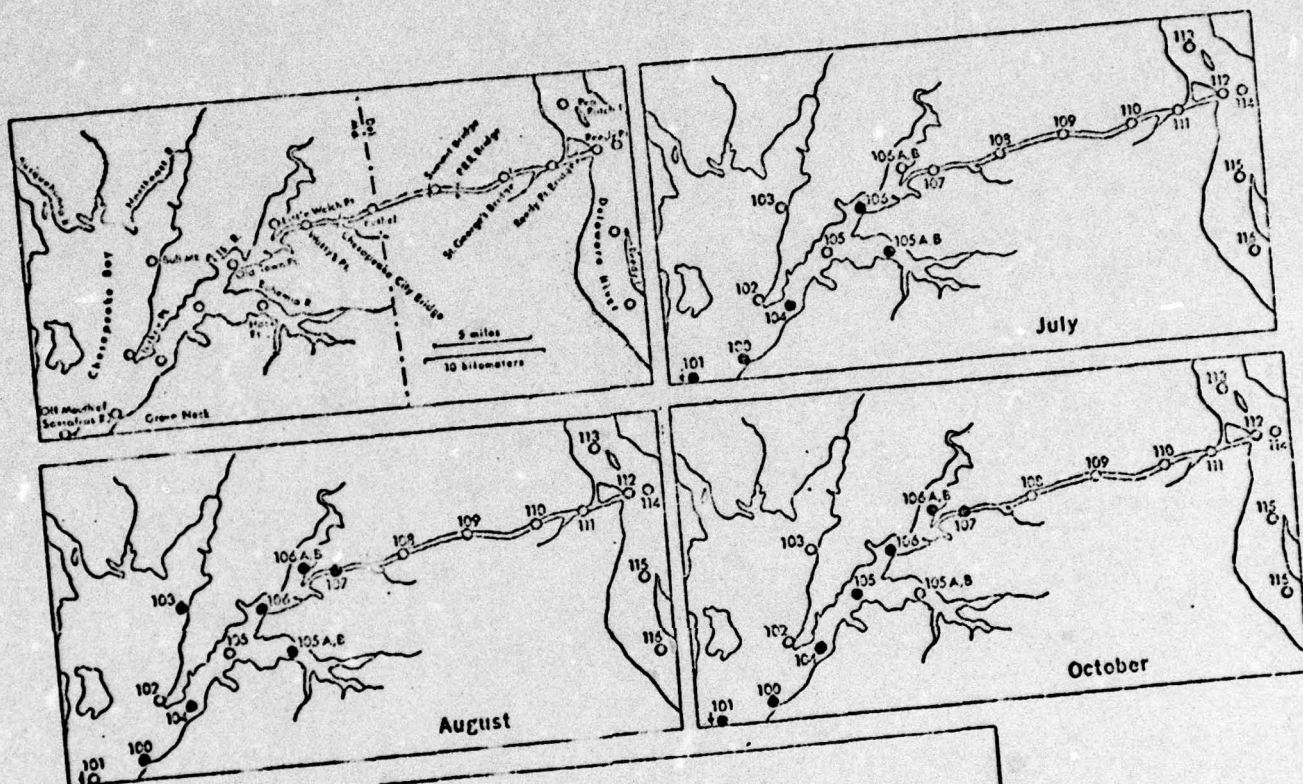


**Fig 3(19) Spottail shiner  
1972**

**C&D Canal Area**

○ Station

● Occurrence





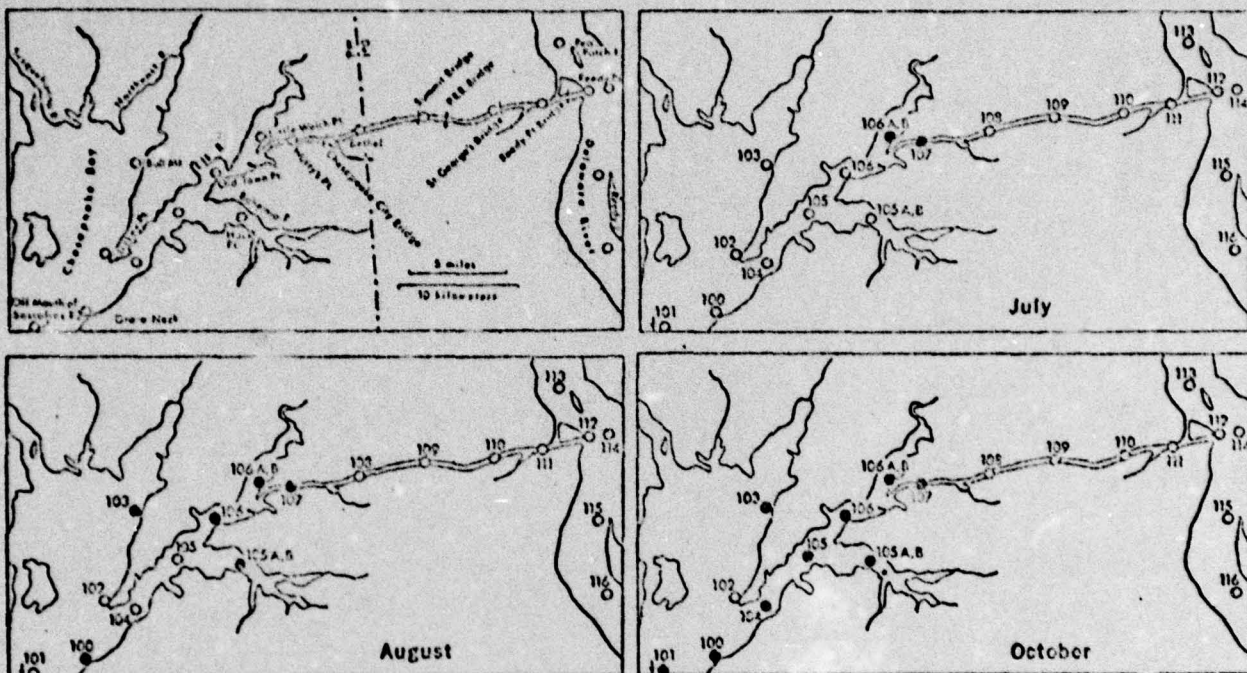


Fig 3(21) Tidewater silversides  
1972

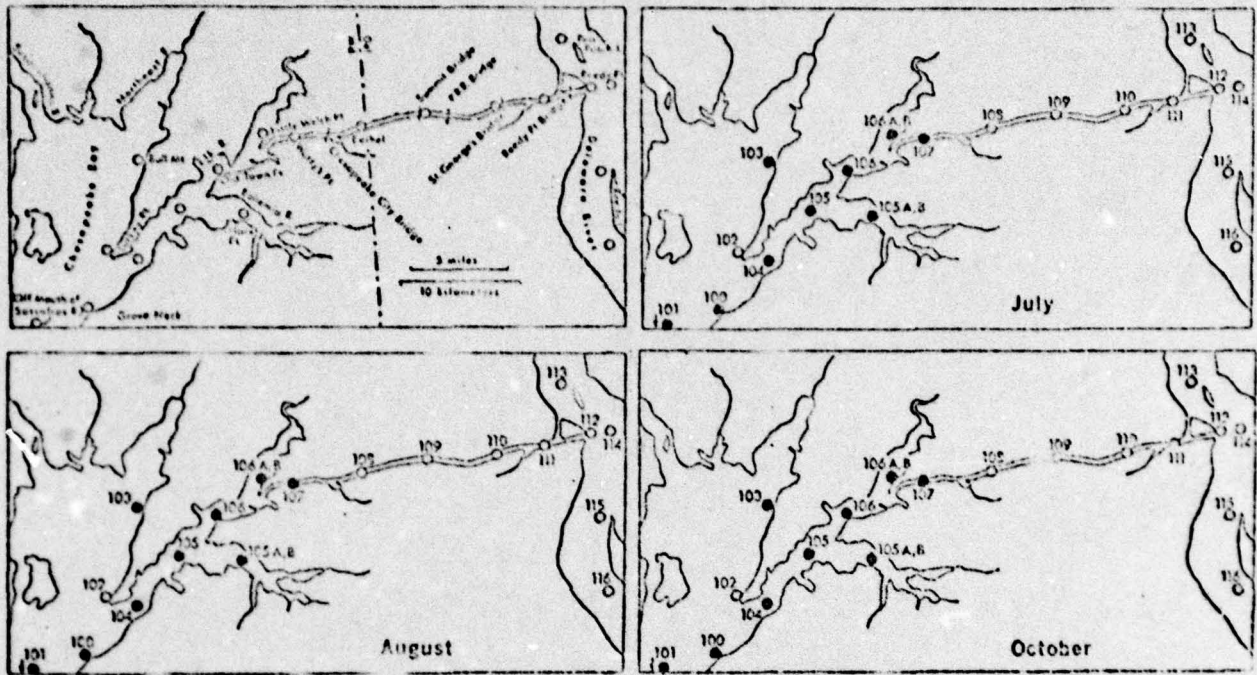
C&D Canal Area

• Station

• Occurrence

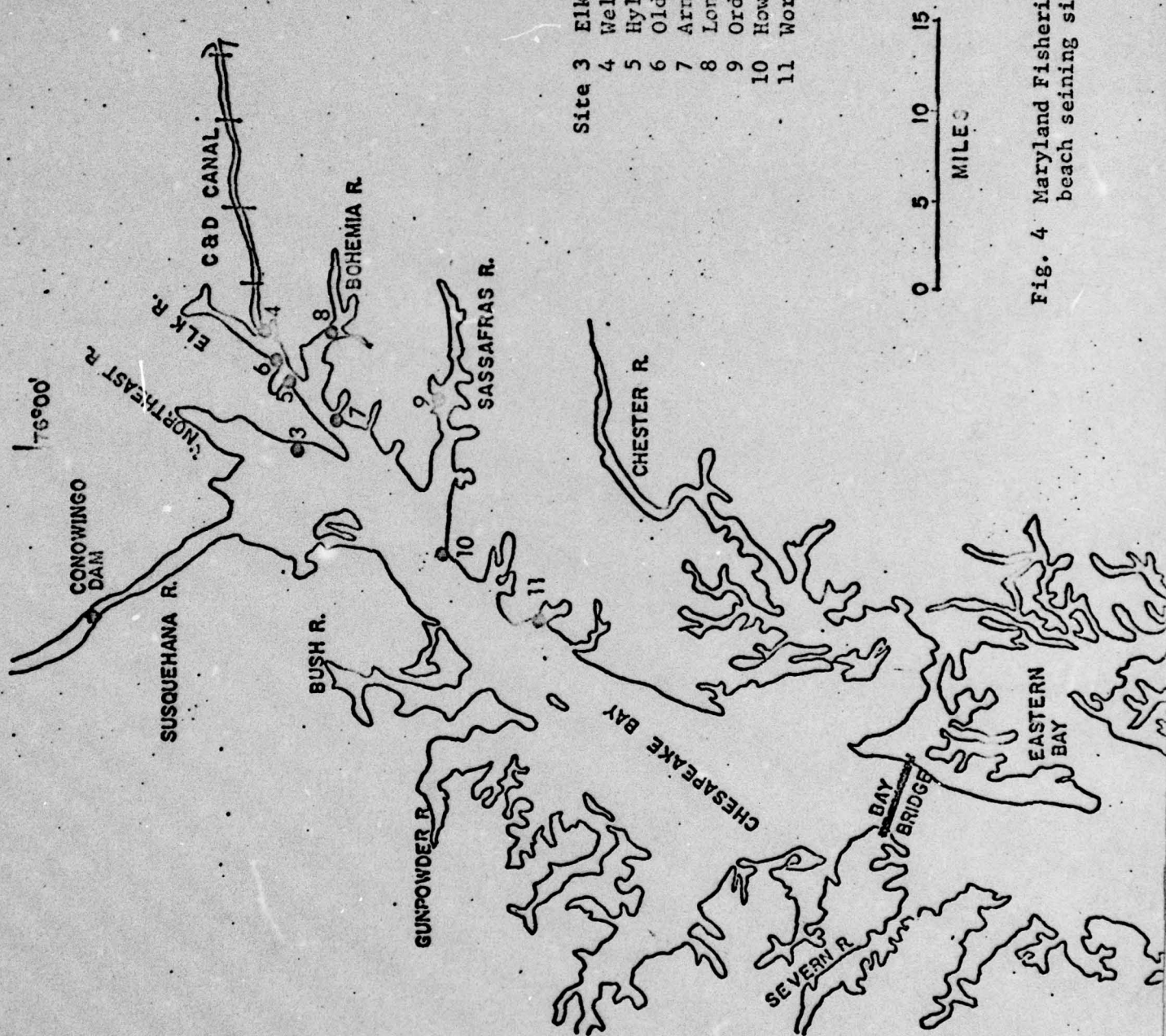












- | Site | Location         |
|------|------------------|
| 3    | Elk Neck Park    |
| 4    | Welch Pt.        |
| 5    | Hylands Pt. Lite |
| 6    | Oldfield Pt.     |
| 7    | Arnold Pt.       |
| 8    | Long Pt.         |
| 9    | Ordinary Pt.     |
| 10   | Howell Pt.       |
| 11   | Worton Creek     |

Fig. 4 Maryland Fisheries Administration beach seining sites.

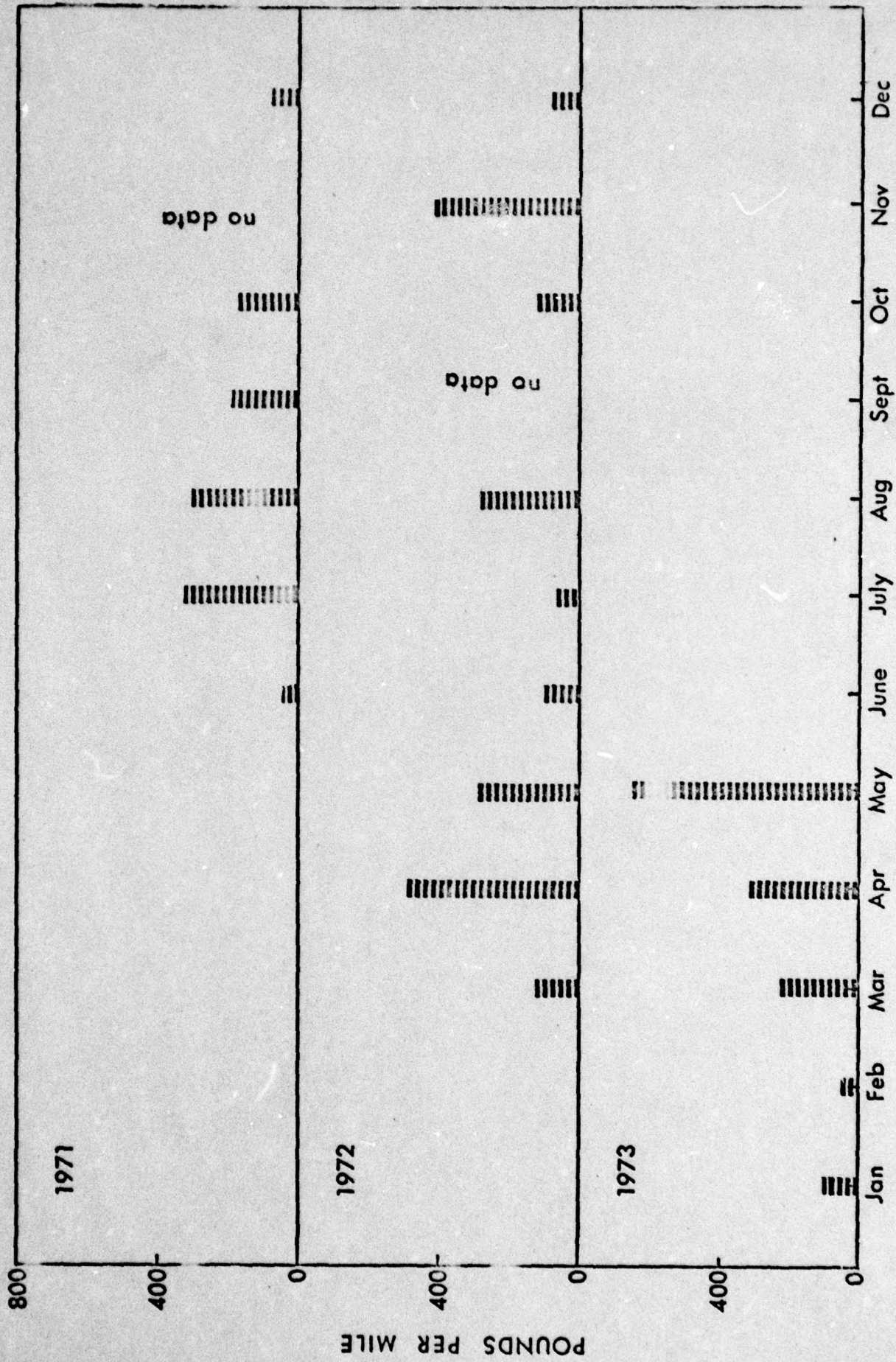


Fig. 5. Combined trawl catches of all fish species from 4 selected stations (CD 101, 104, 105, and 106 AB from June 1971 to May 1973, in pounds per mile trawled.



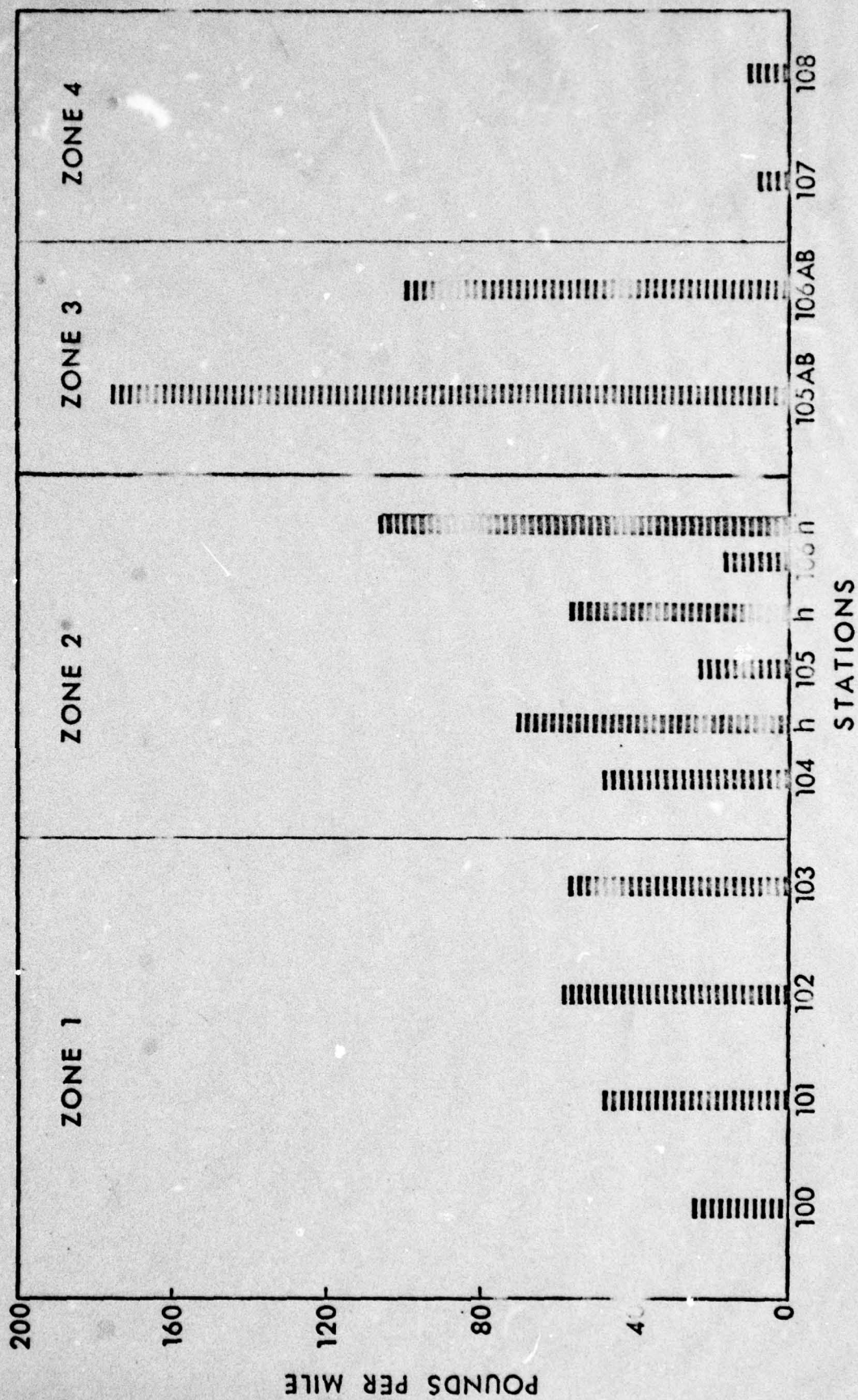


Fig. 6. Average pounds of fish of all species per mile trawled per station.

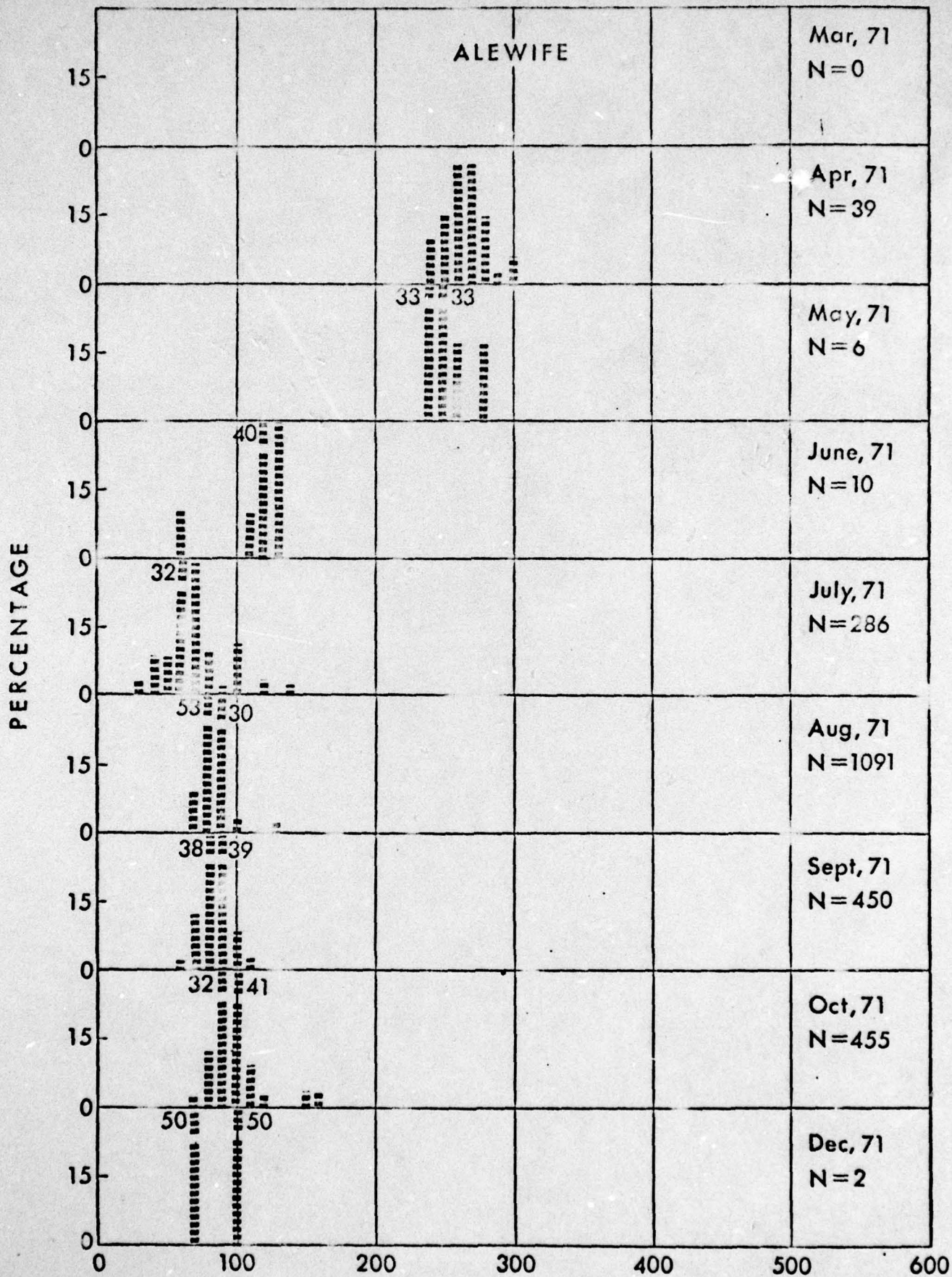


Fig. 7a

FORK LENGTH FREQUENCY by 10 mm GROUPS



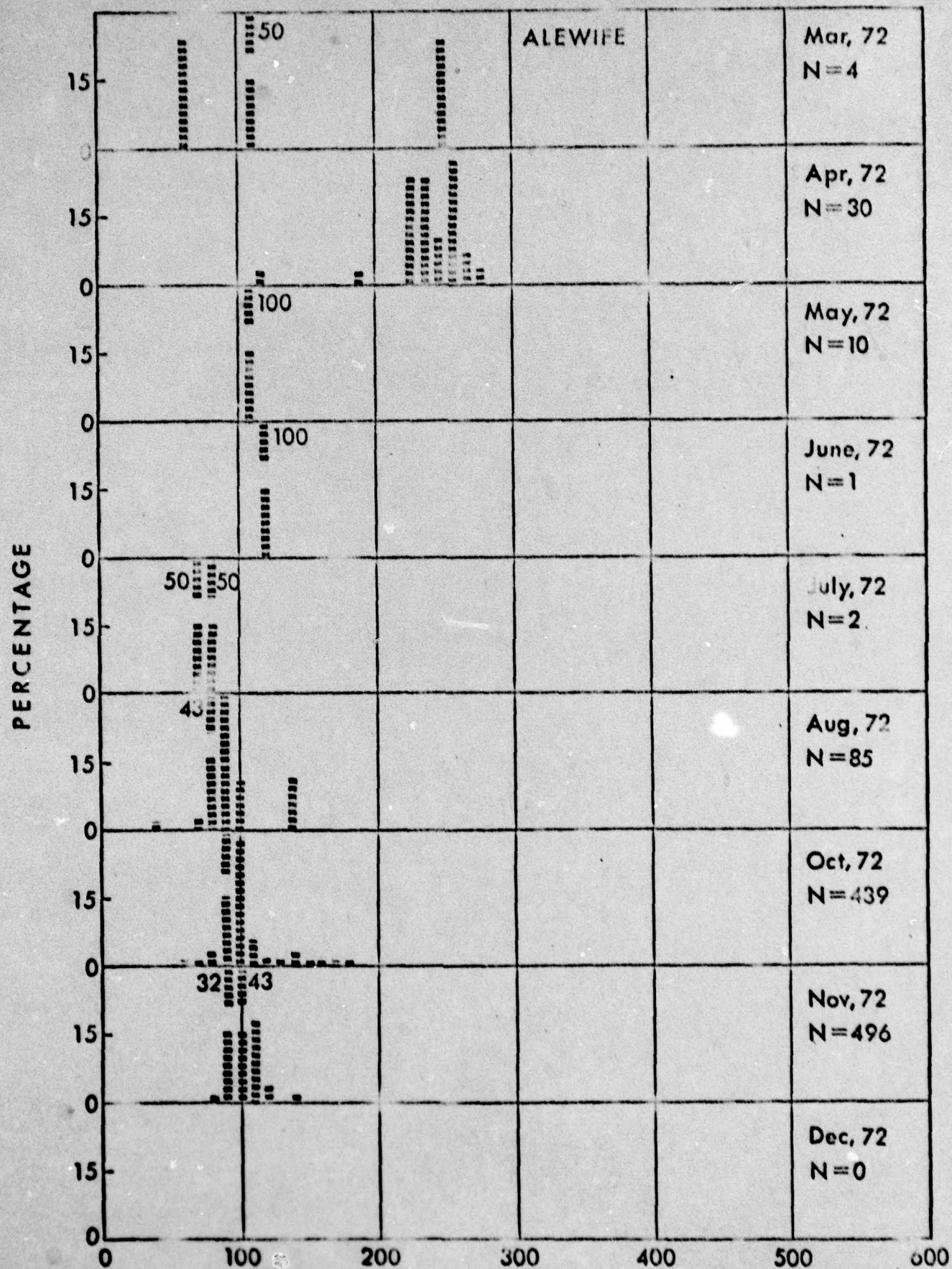


Fig. 7b

FORK LENGTH FREQUENCY by 10 mm GROUPS

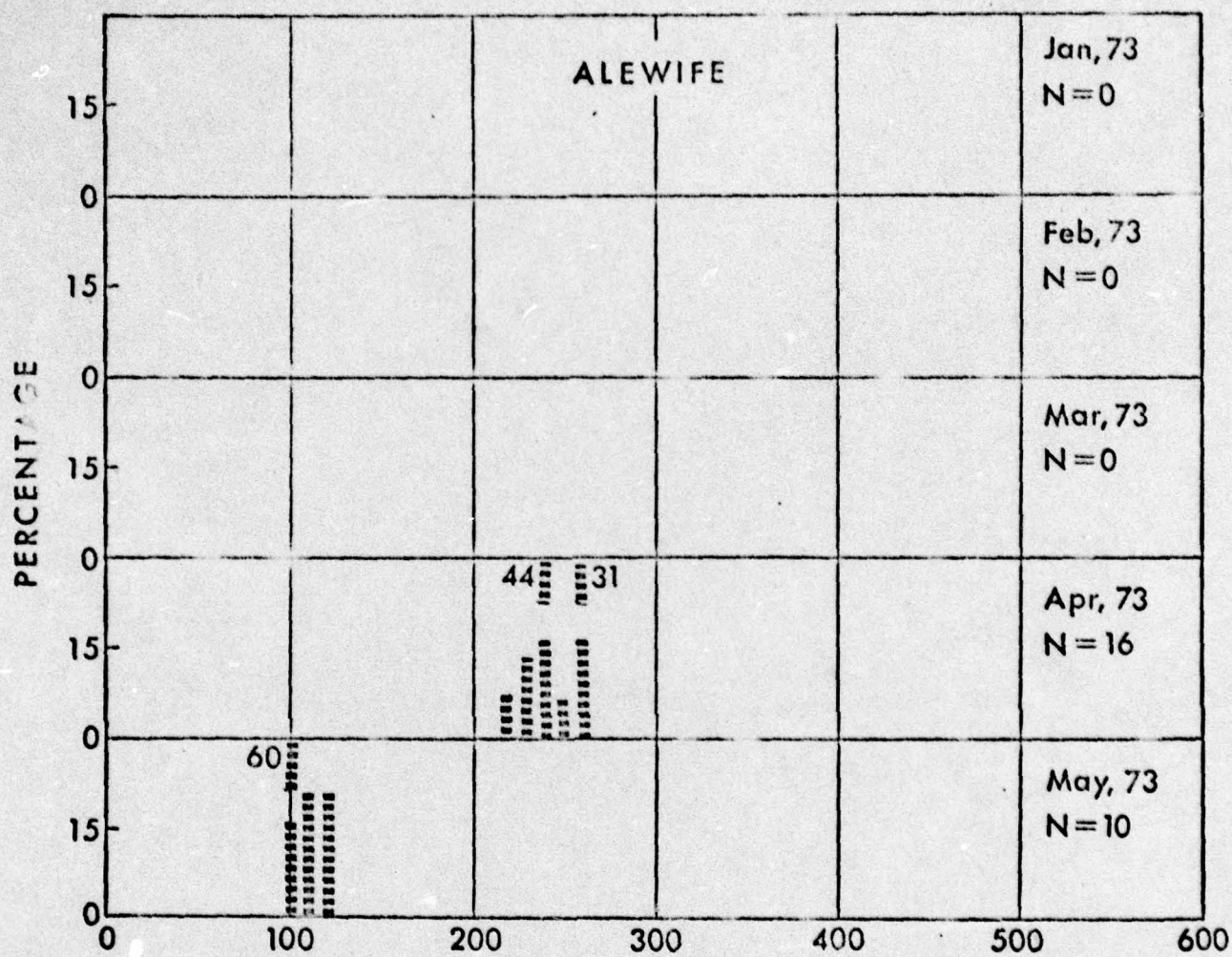


Fig. 7c' FORK LENGTH FREQUENCY by 10 mm GROUPS



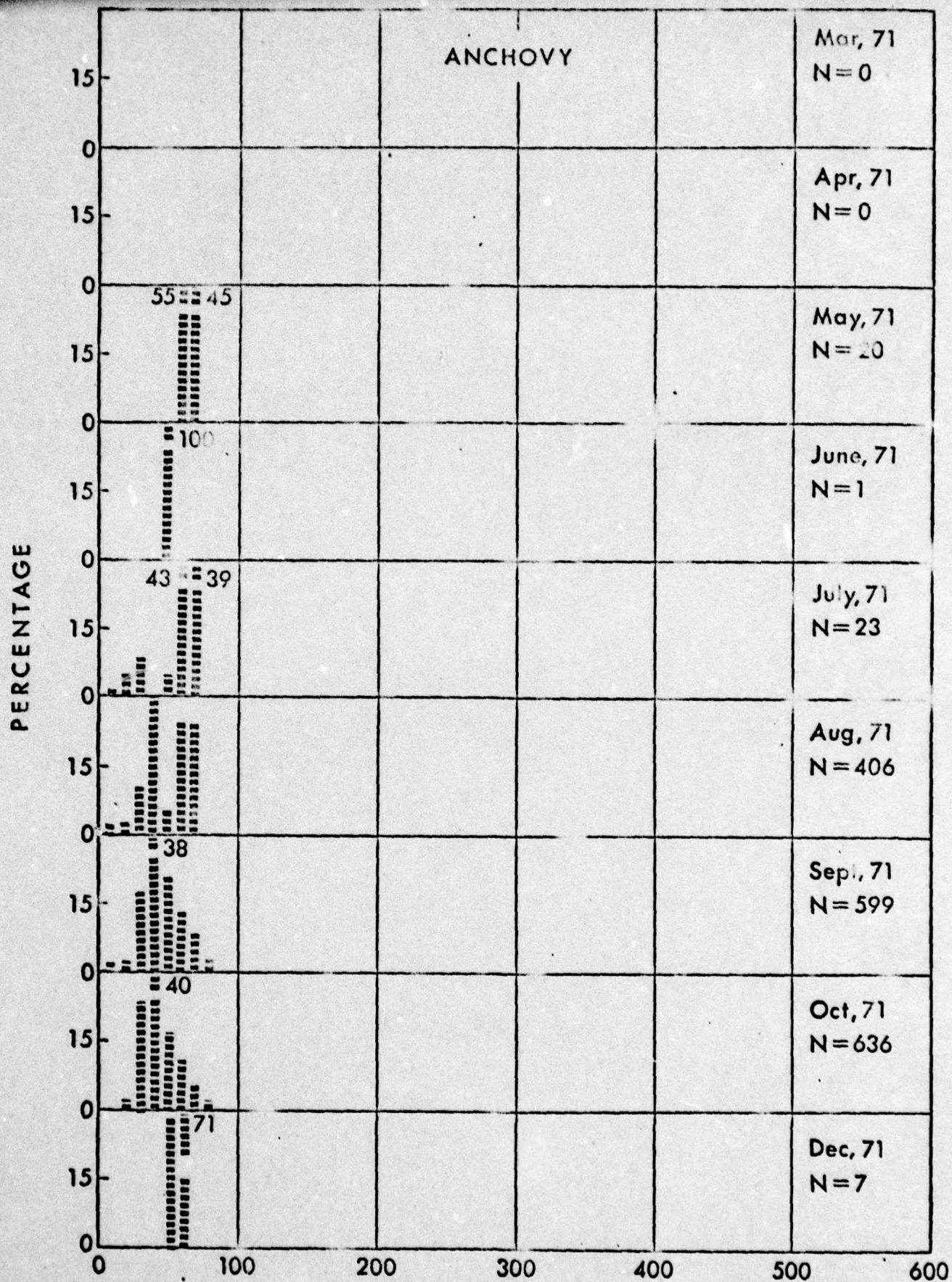


Fig. 8a FORK LENGTH FREQUENCY by 10 mm GROUPS

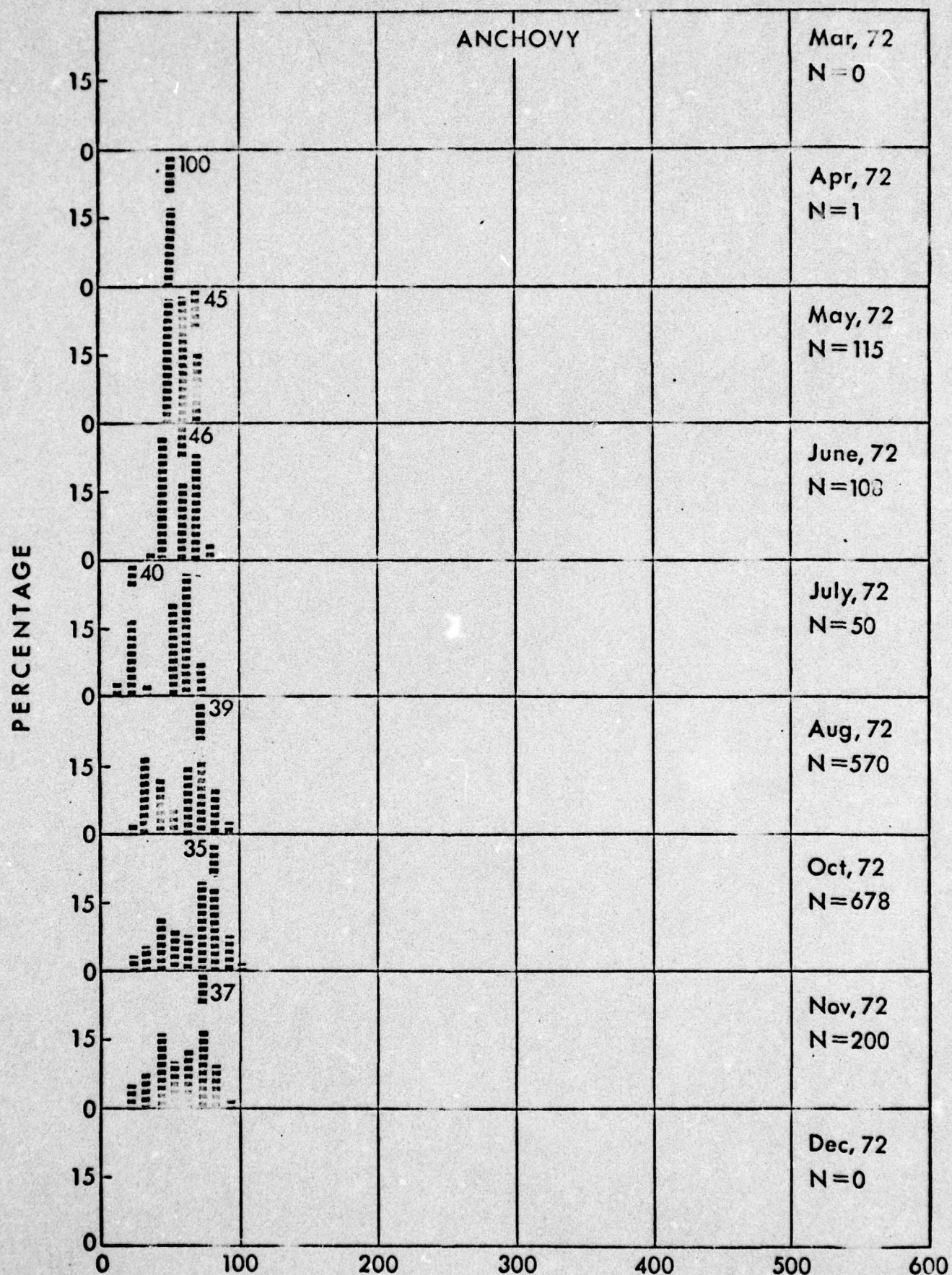


Fig. 8b      FORK LENGTH FREQUENCY by 10 mm GROUPS



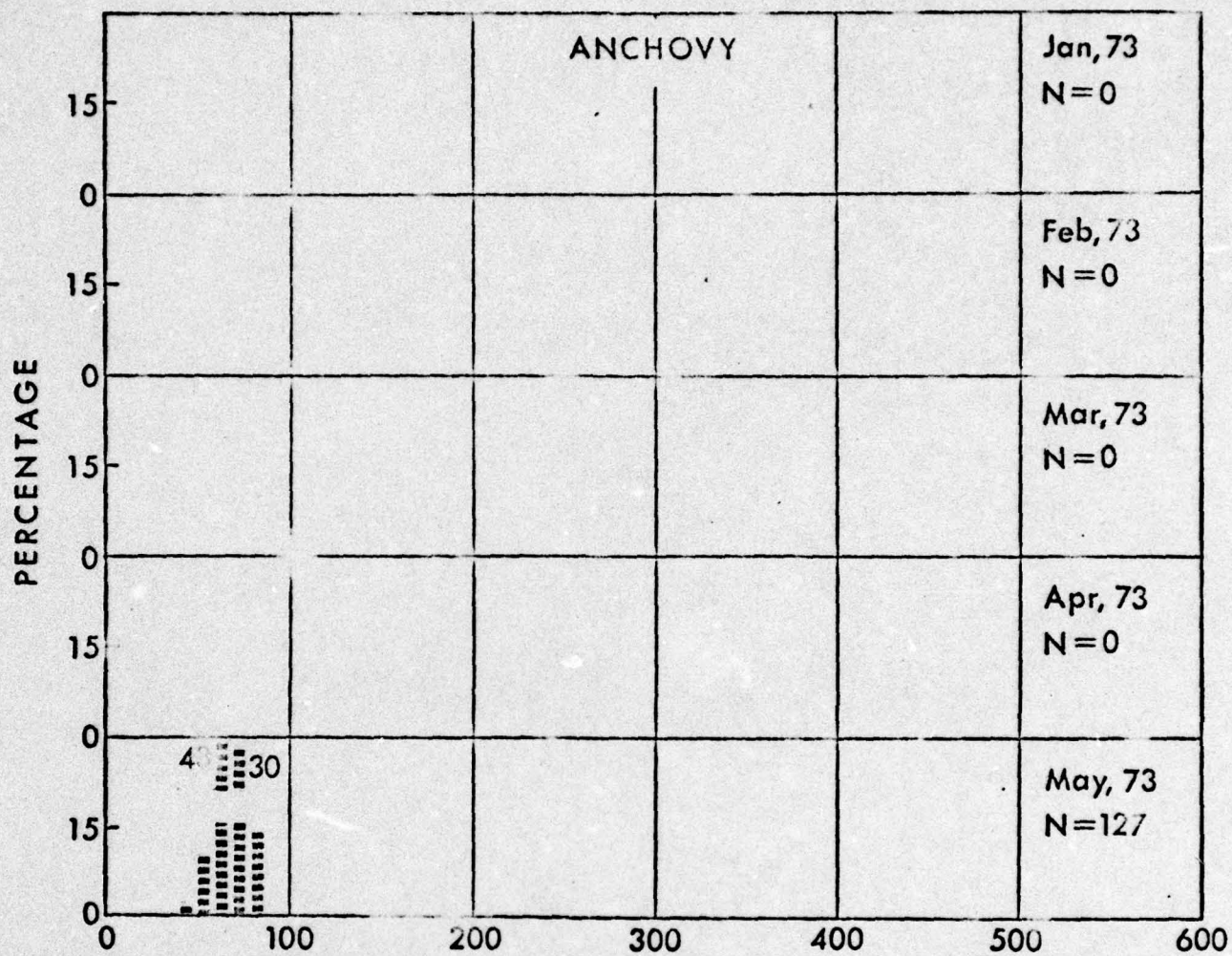


Fig. 8c FORK LENGTH FREQUENCY by 10 mm GROUPS





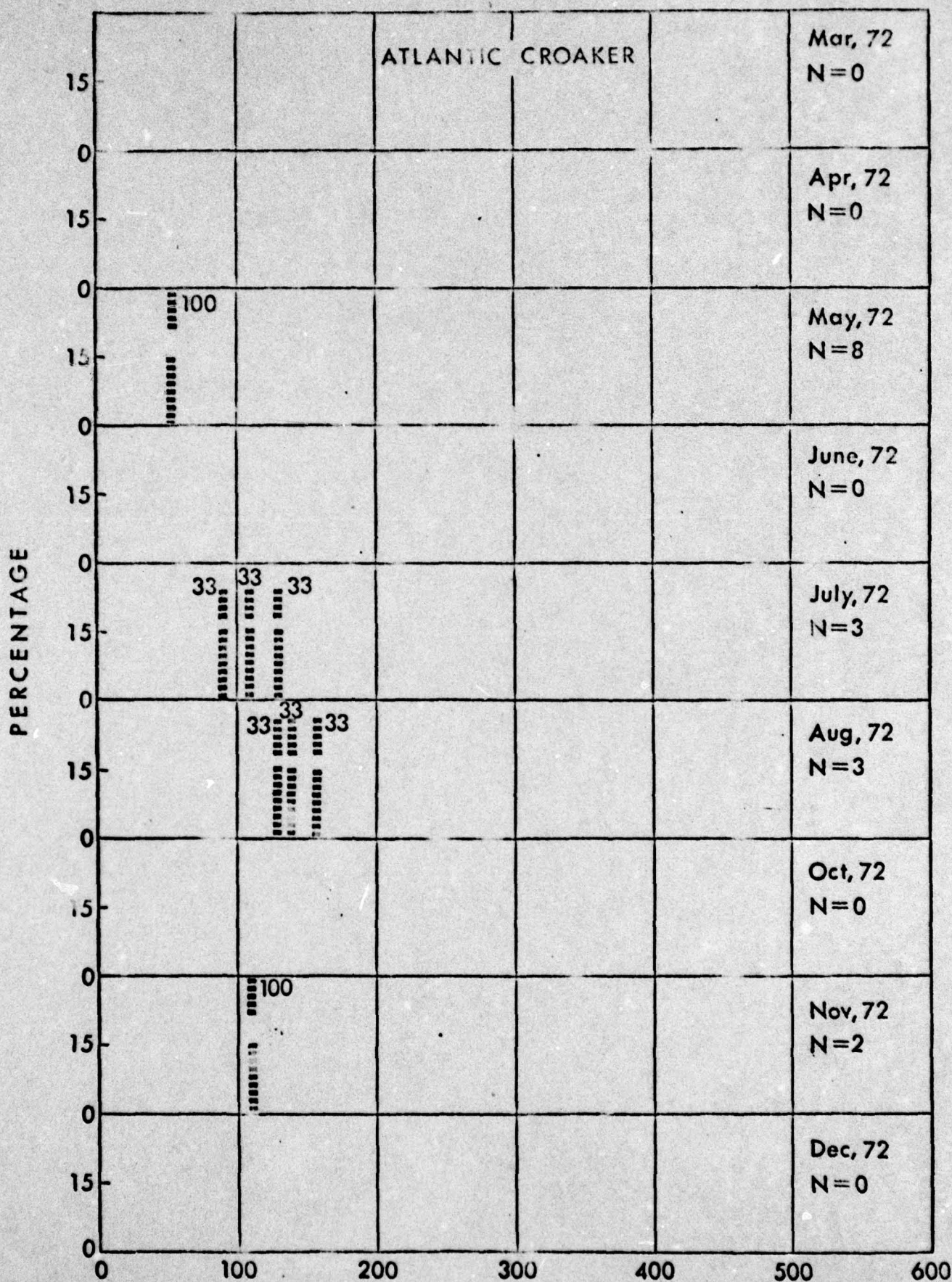


Fig. 9b

FORK LENGTH FREQUENCY by 10 mm GROUPS

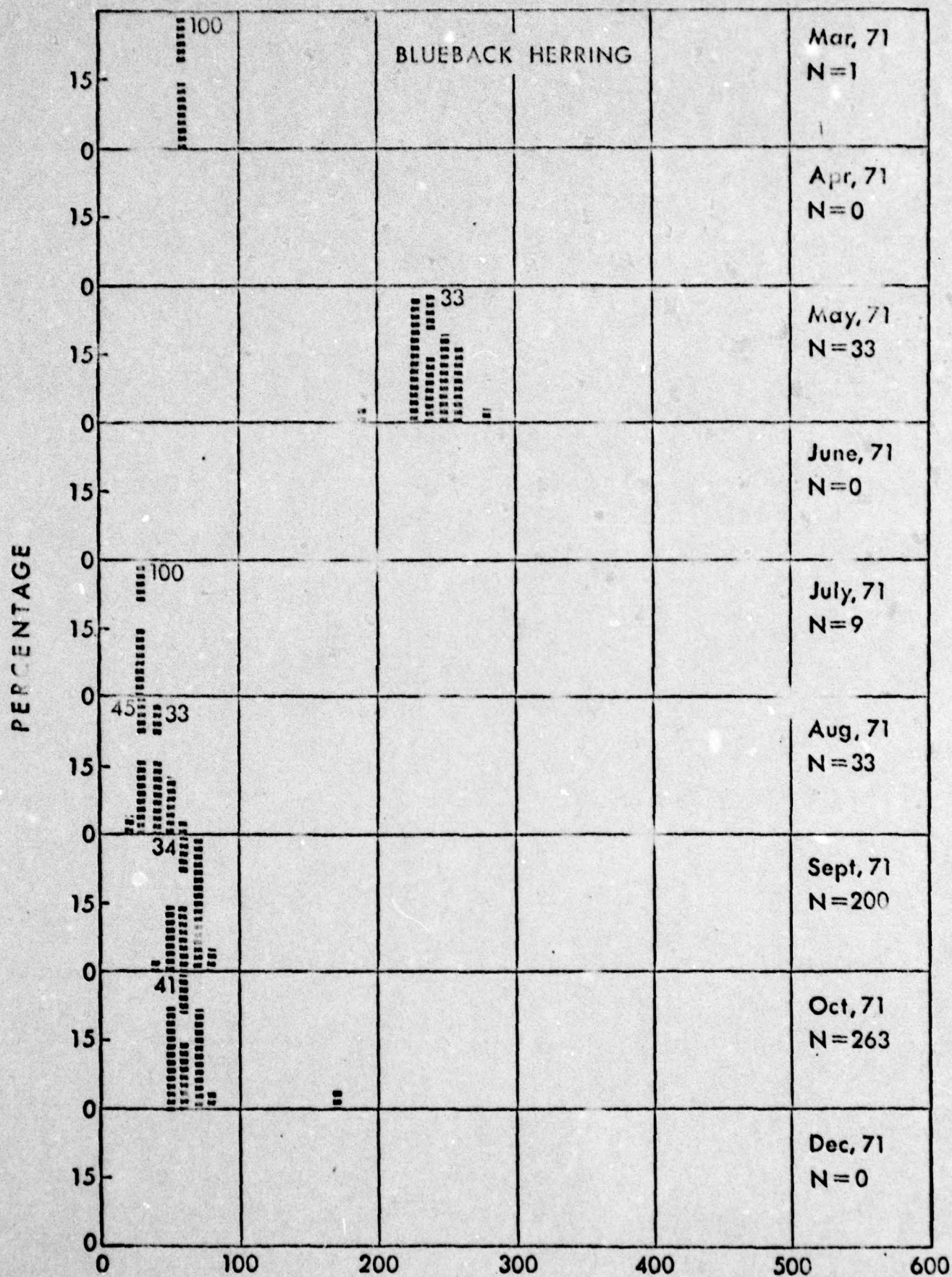


Fig. 10a FORK LENGTH FREQUENCY by 10 mm GROUPS



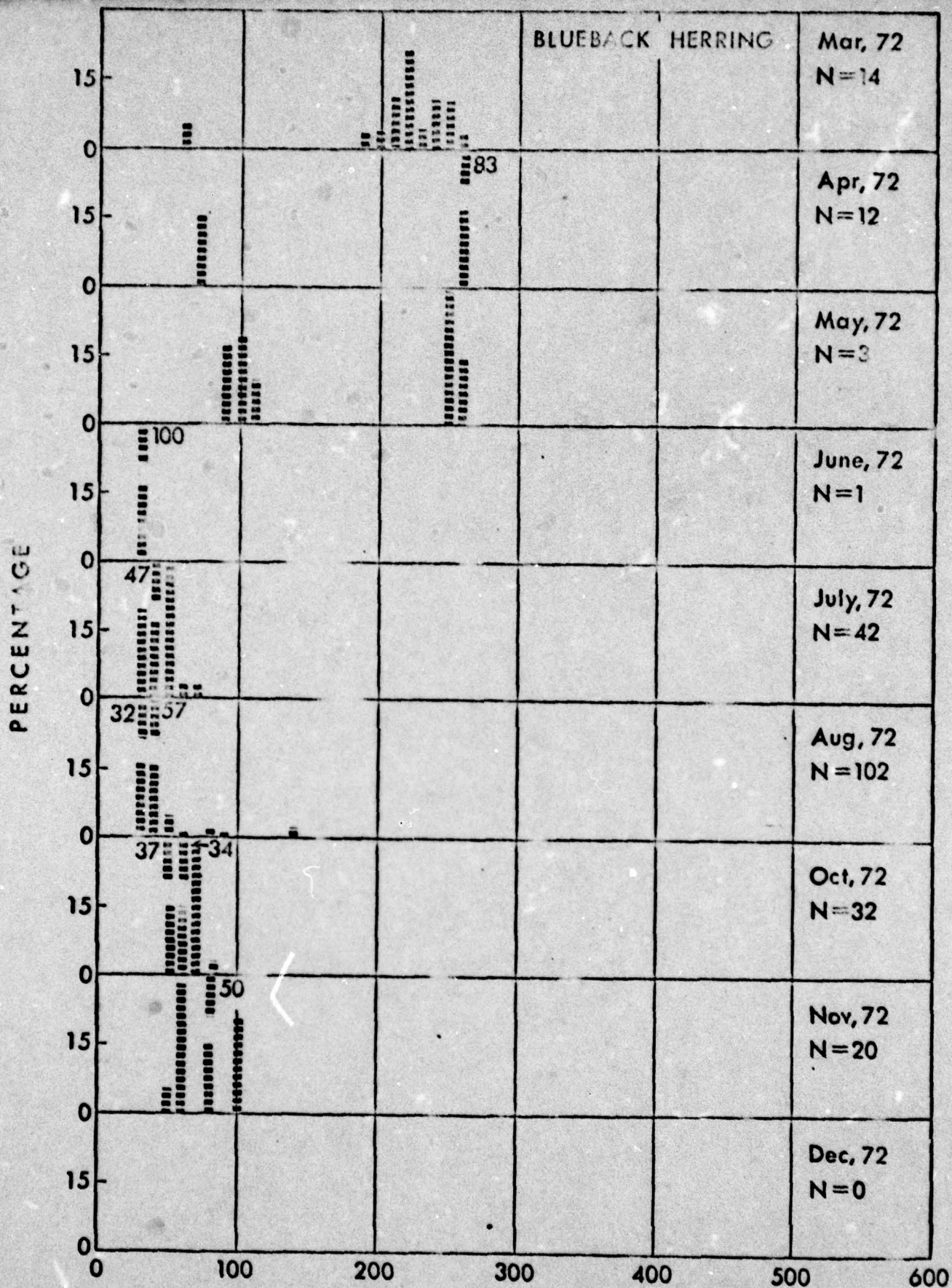


Fig. 10b **FORK LENGTH FREQUENCY by 10 mm GROUPS**

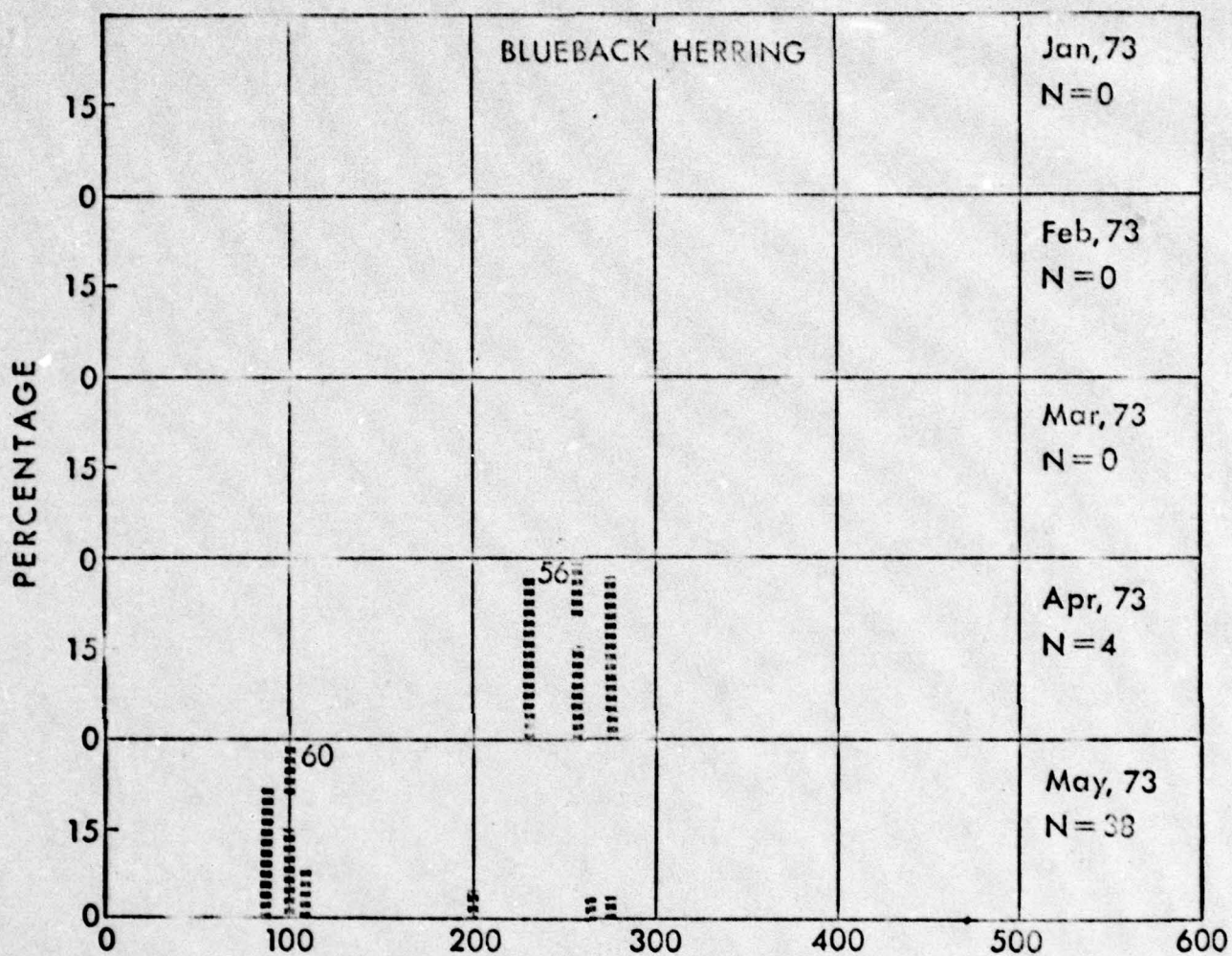


Fig. 10c FORK LENGTH FREQUENCY by 10 mm GROUPS



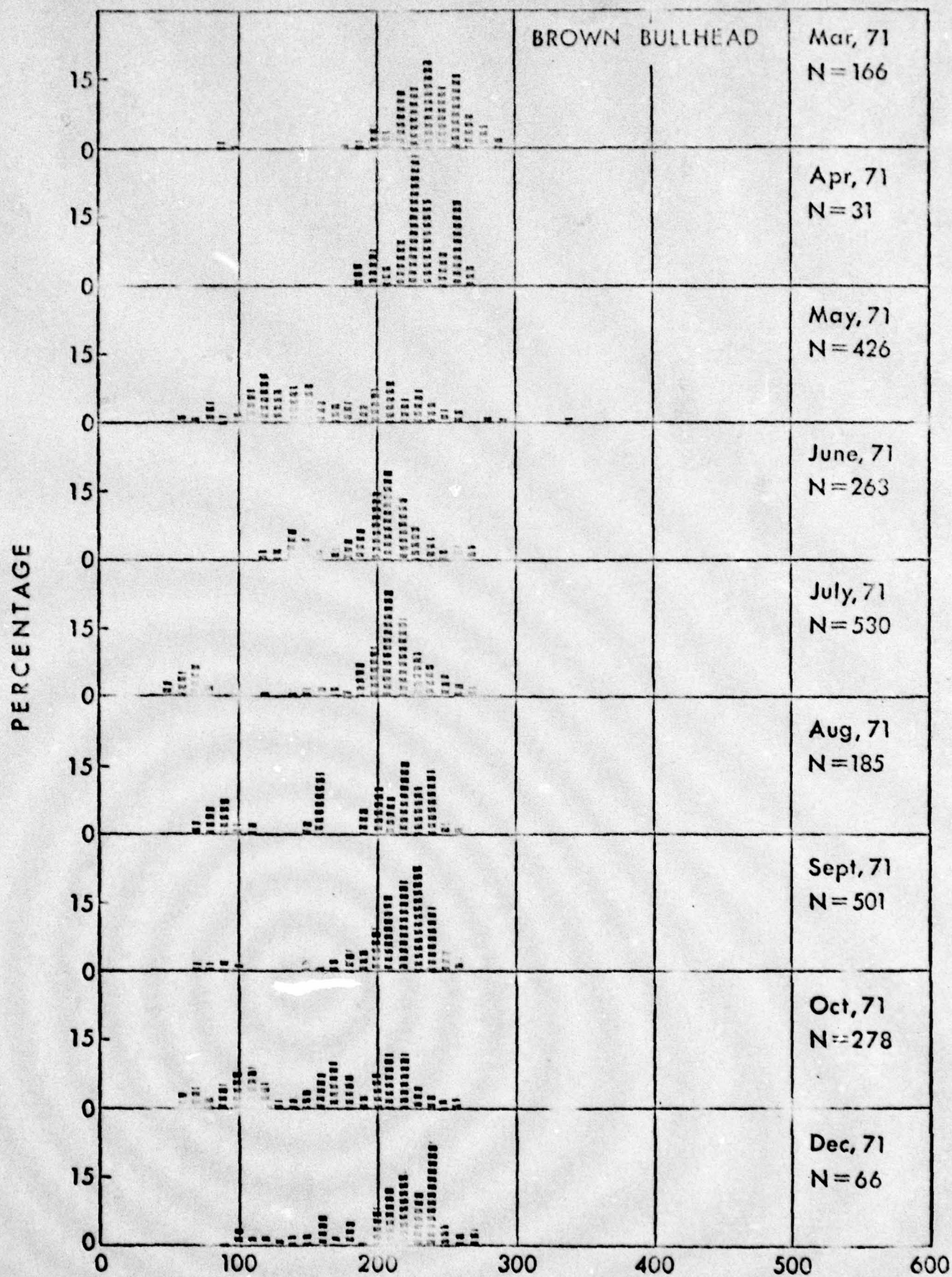


Fig. 11a FORK LENGTH FREQUENCY by 10 mm GROUPS

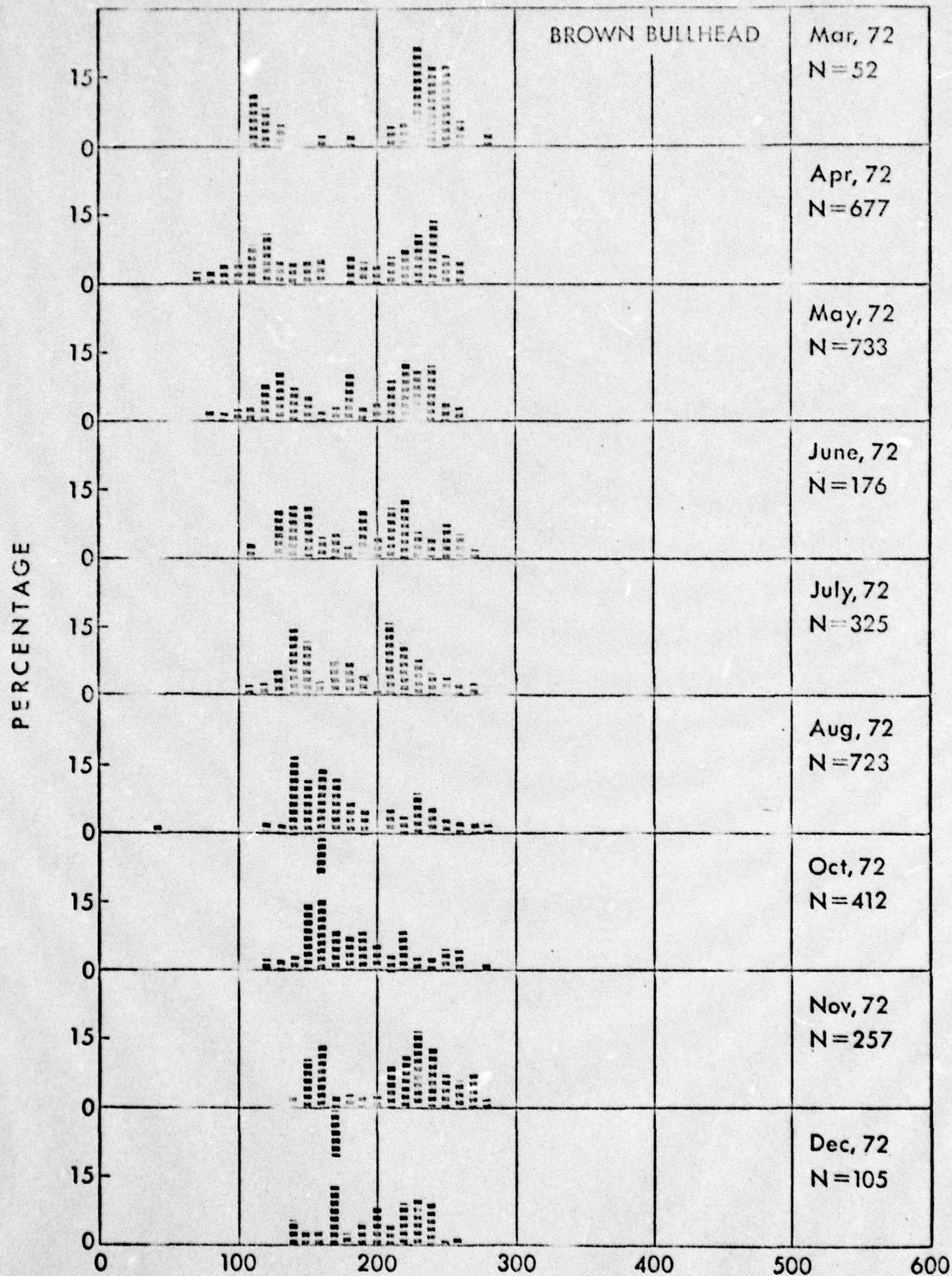


Fig. 11b FORK LENGTH FREQUENCY by 10 mm GROUPS



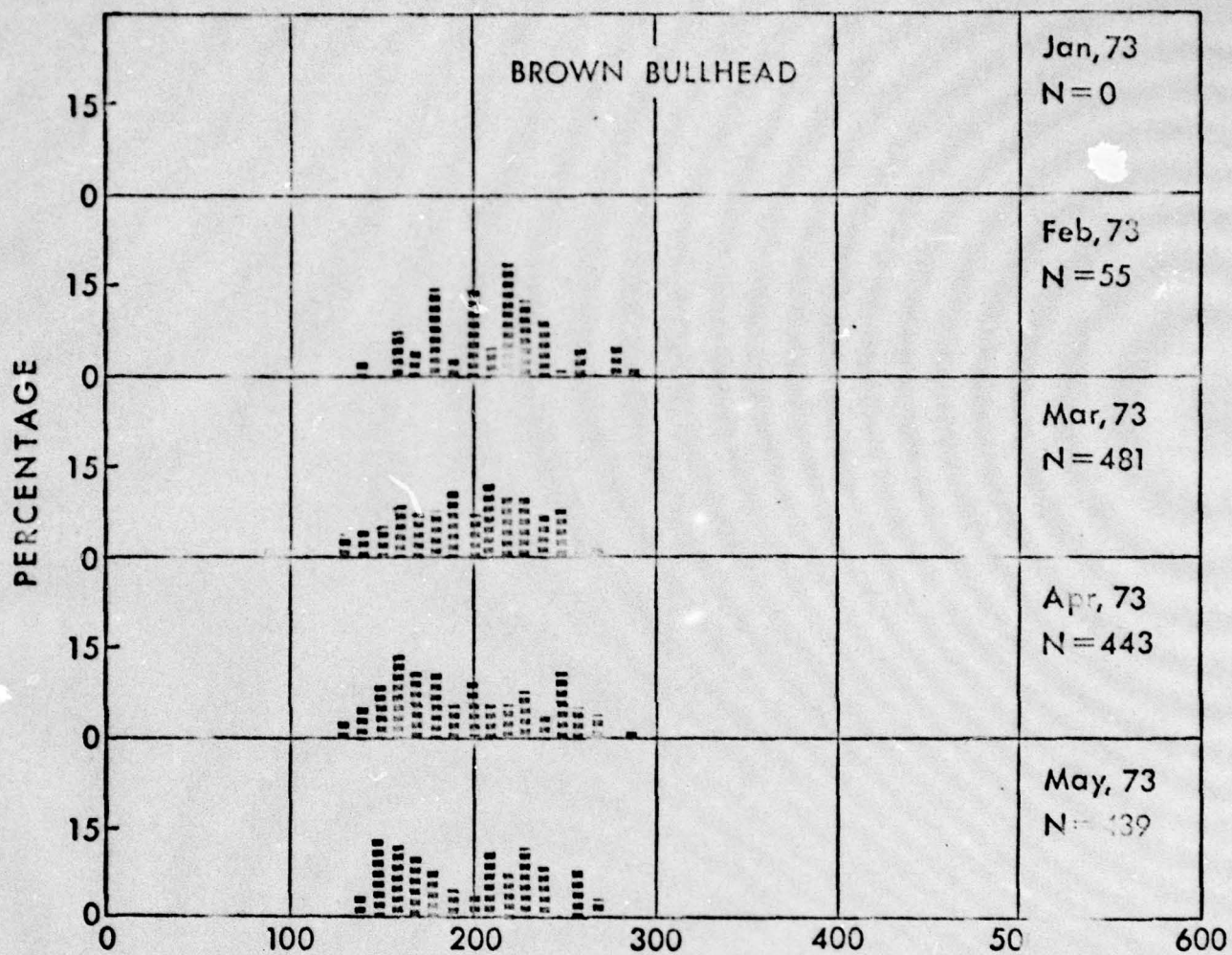


Fig. 11c FORK LENGTH FREQUENCY by 10 mm GROUPS

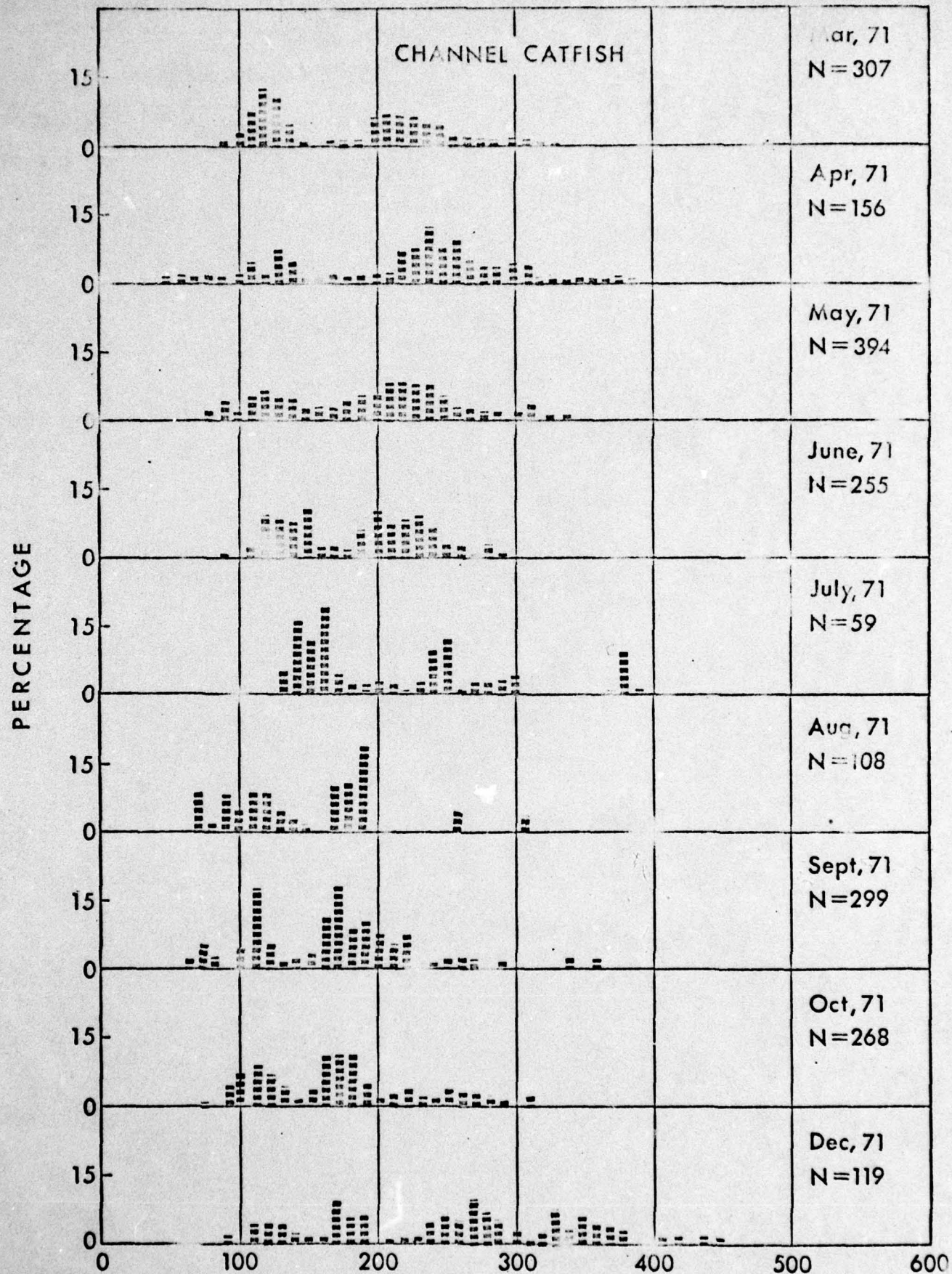


Fig. 12a FORK LENGTH FREQUENCY by 10 mm GROUPS



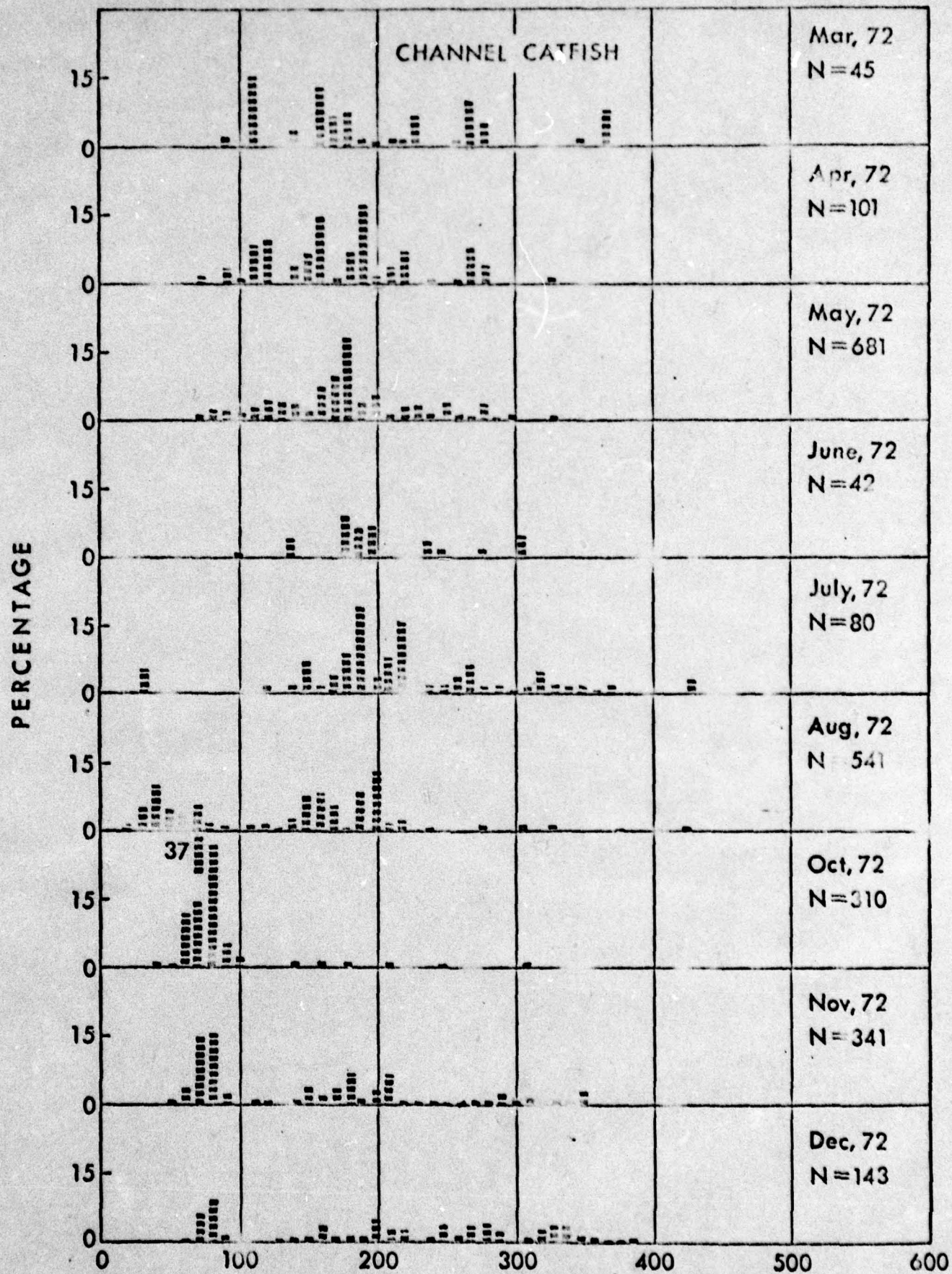


Fig. 12b FORK LENGTH FREQUENCY by 10 mm GROUPS

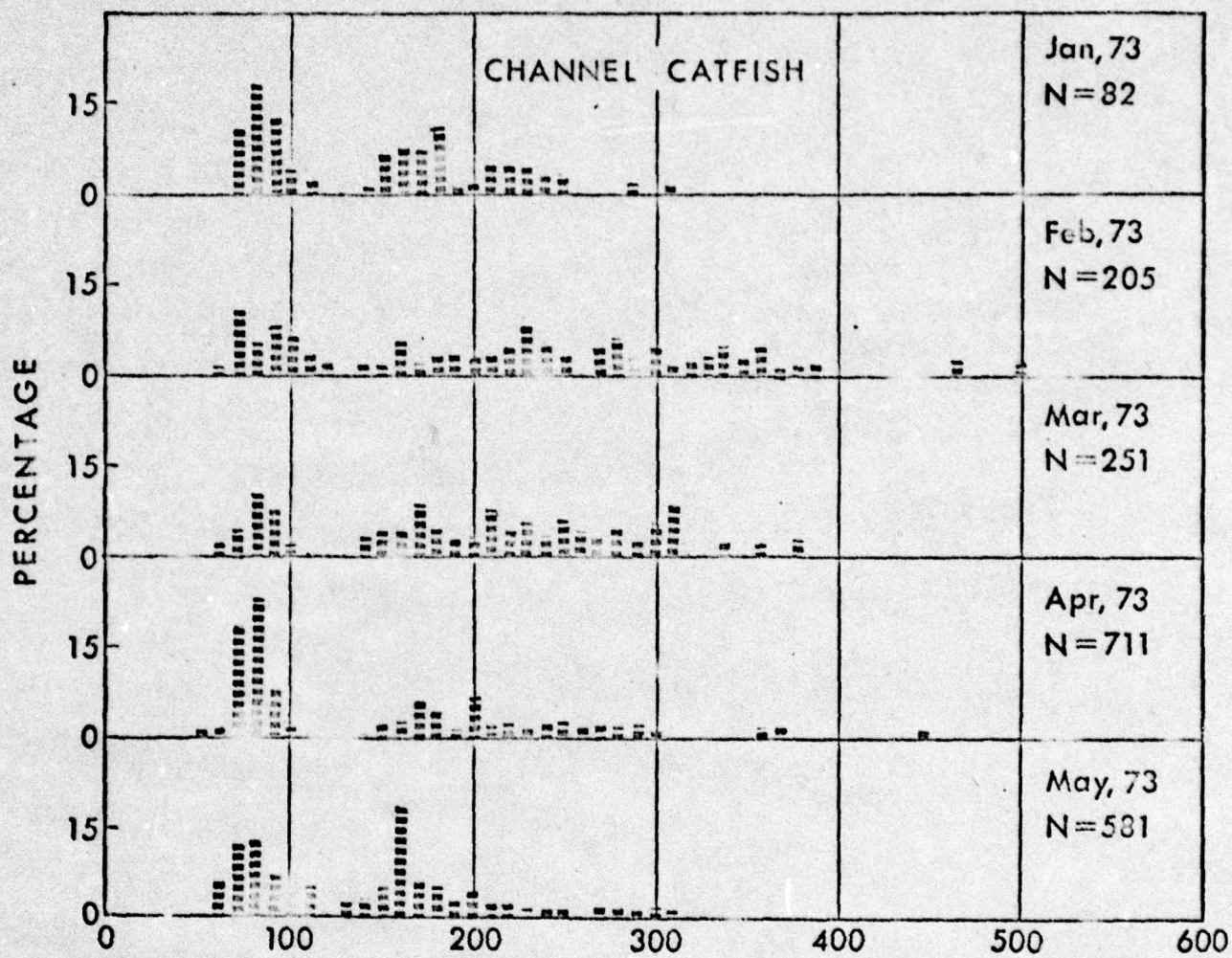
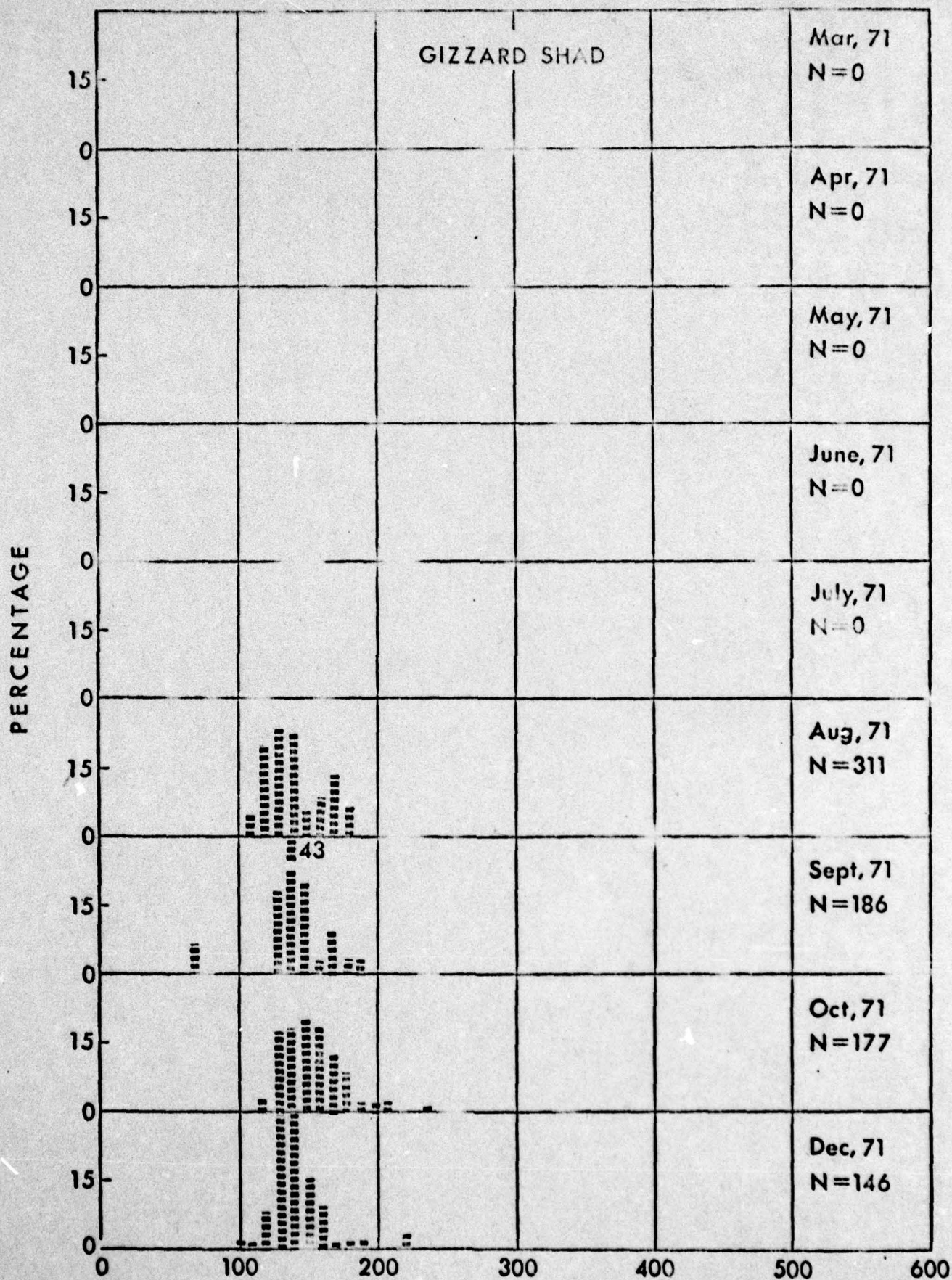


Fig. 12c FORK LENGTH FREQUENCY by 10 mm GROUPS





**Fig. 13a**    **FORK LENGTH FREQUENCY by 10 mm GROUPS**

PERCENTAGE

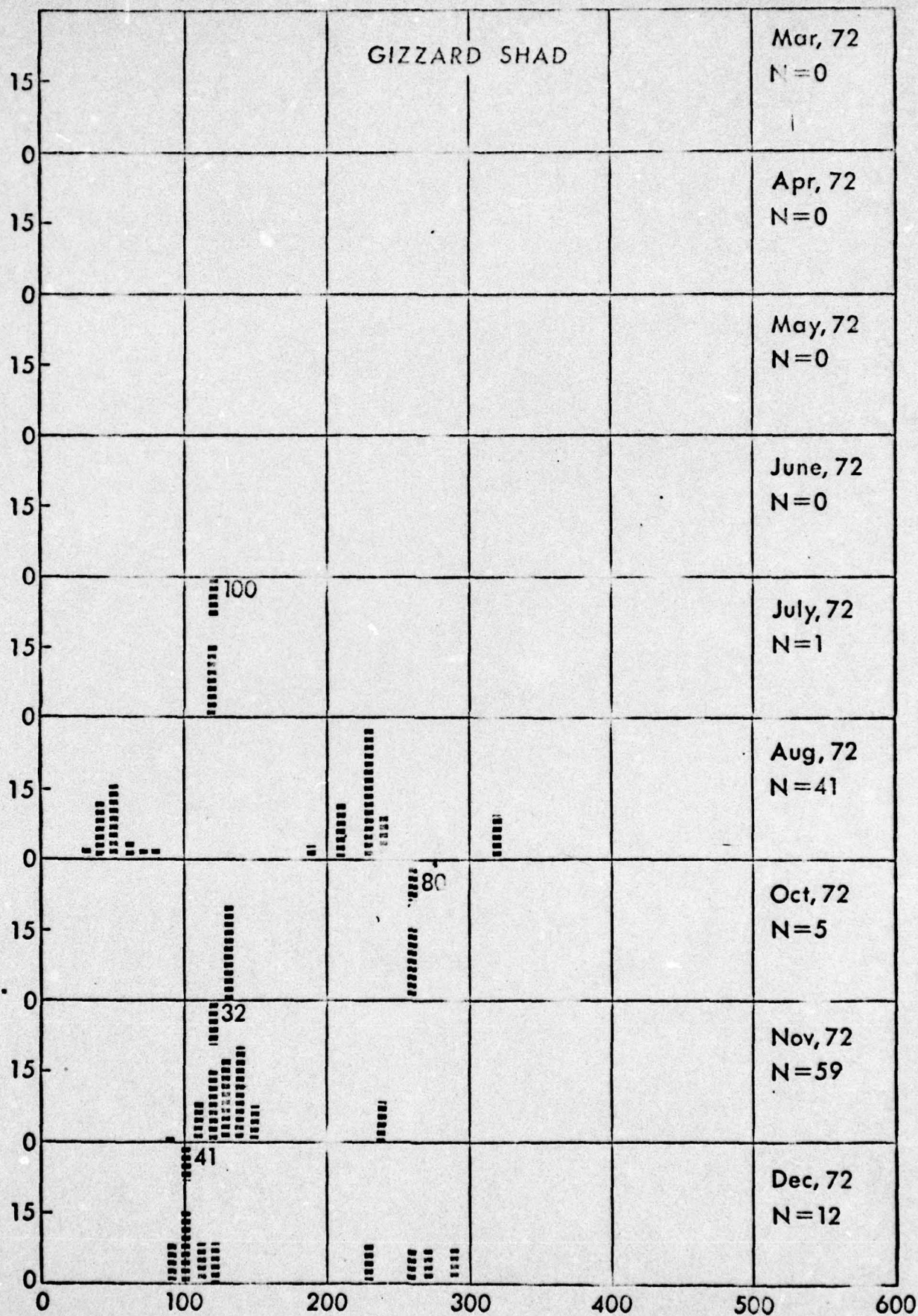


Fig. 13b FORK LENGTH FREQUENCY by 10 mm GROUPS



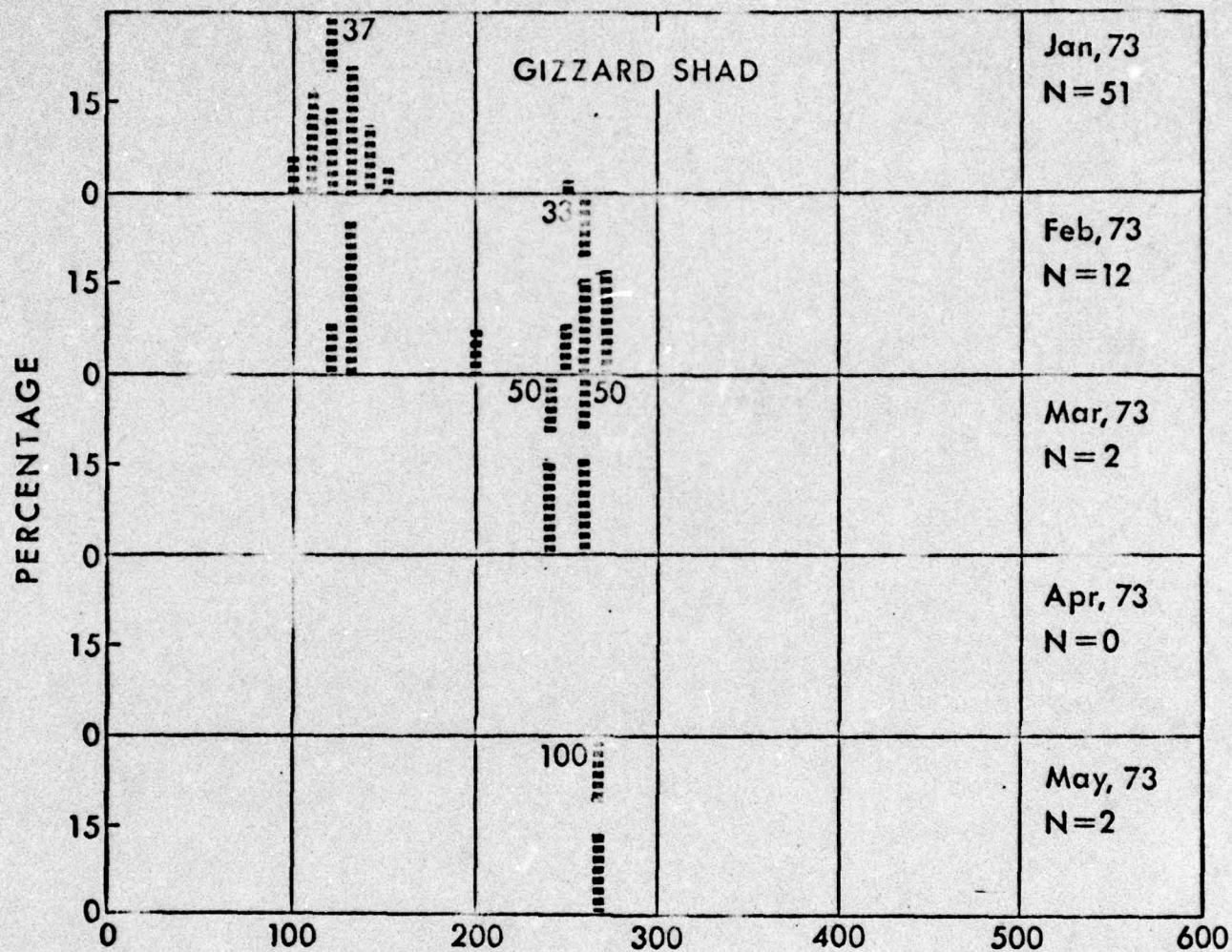
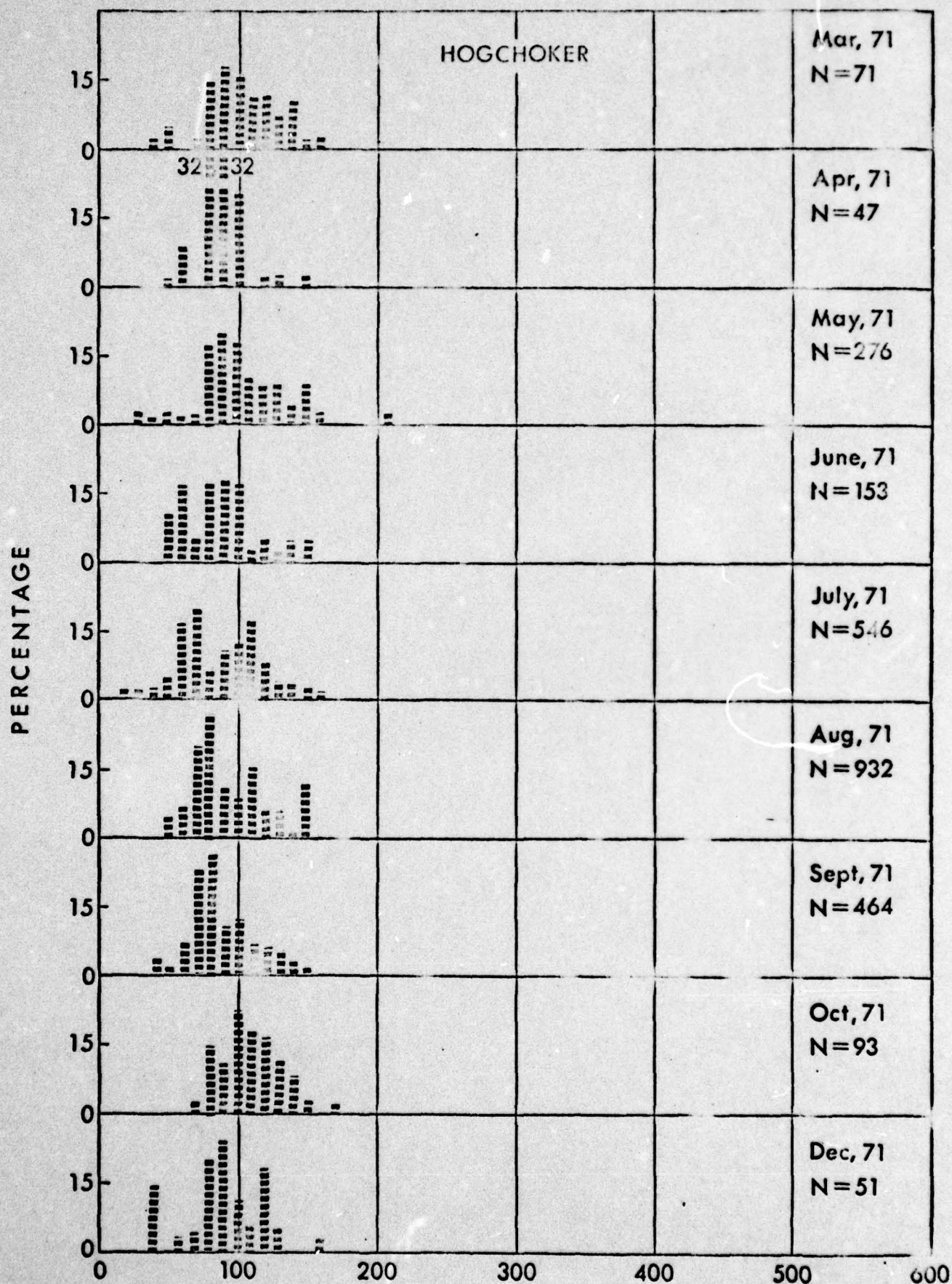


Fig. 13c FORK LENGTH FREQUENCY by 10 mm GROUPS



**Fig. 14a** FORK LENGTH FREQUENCY by 10 mm GROUPS



**BEST AVAILABLE COPY**

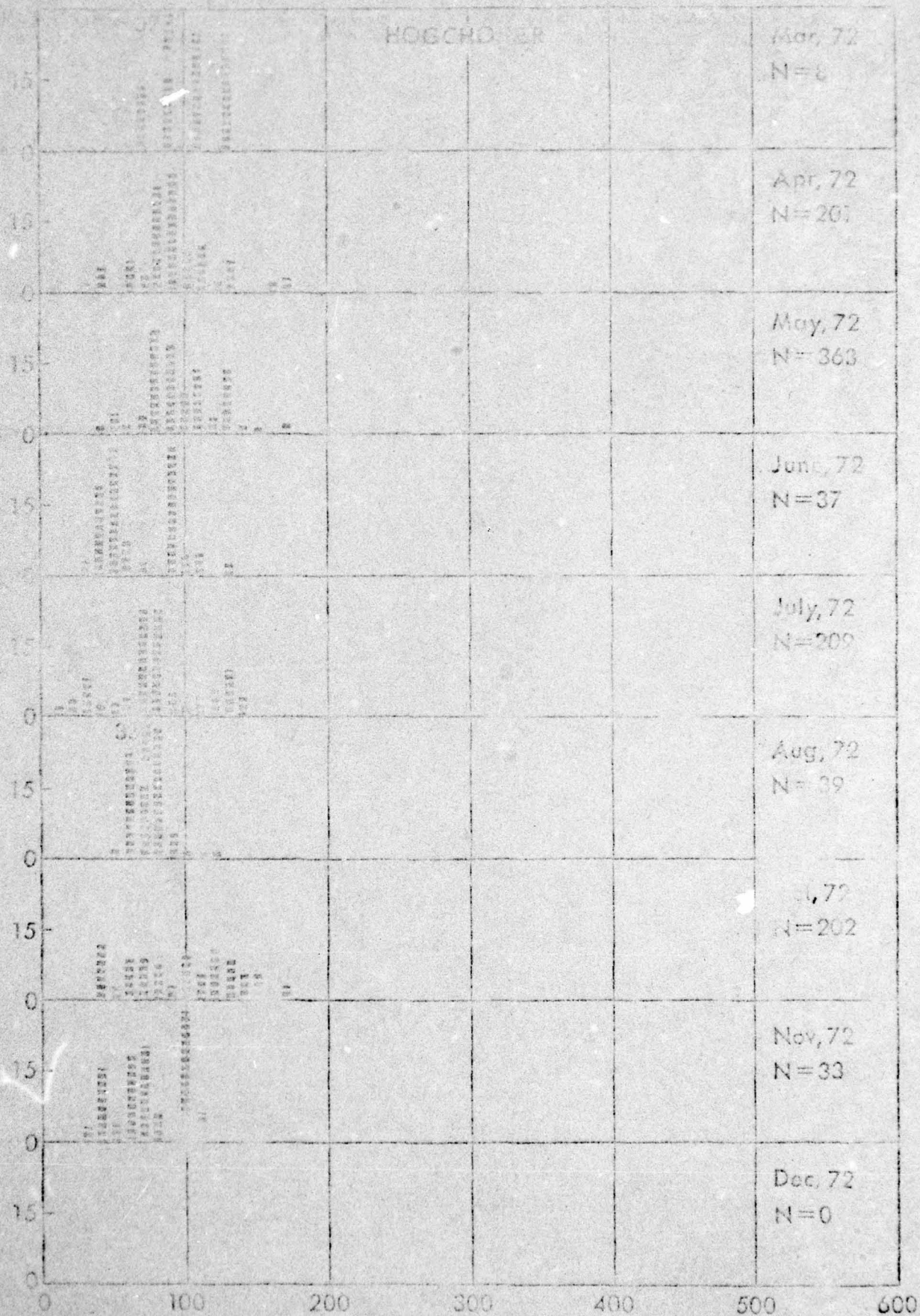


FIG. 14b FORK LENGTH FREQUENCY by 10 mm GROUPS

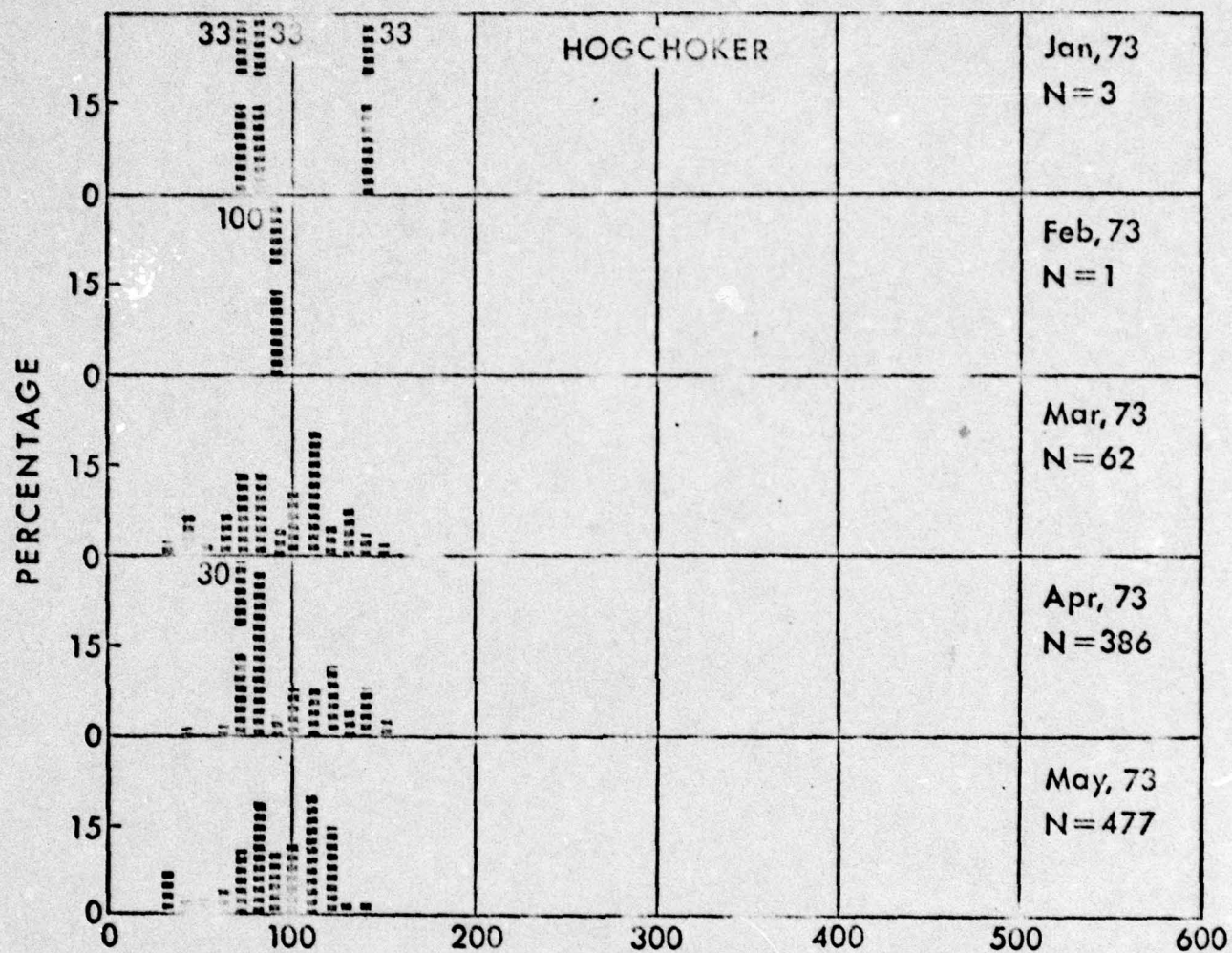


Fig. 14c FORK LENGTH FREQUENCY by 10 mm GROUPS



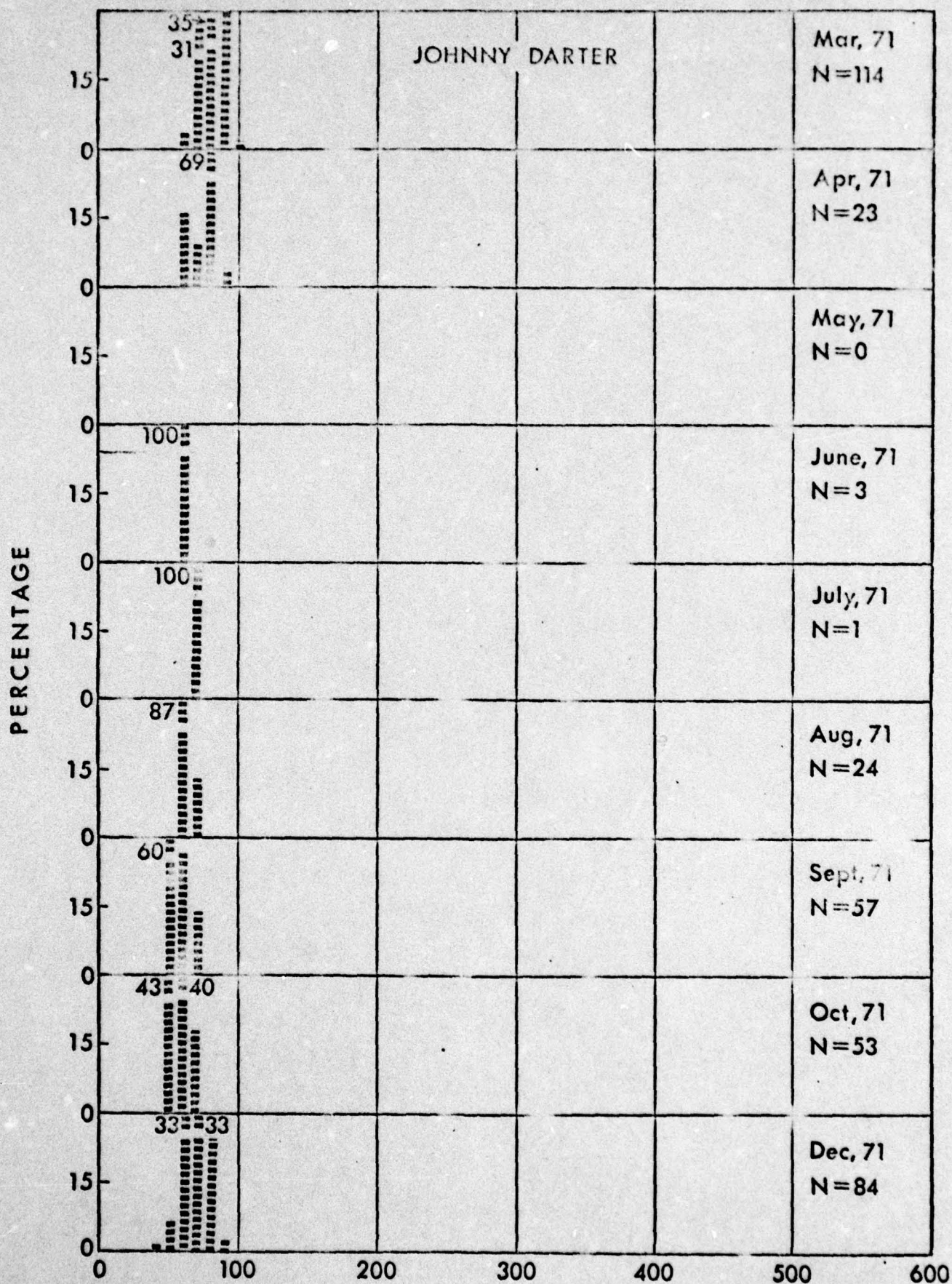


Fig. 15a FORK LENGTH FREQUENCY by 10 mm GROUPS

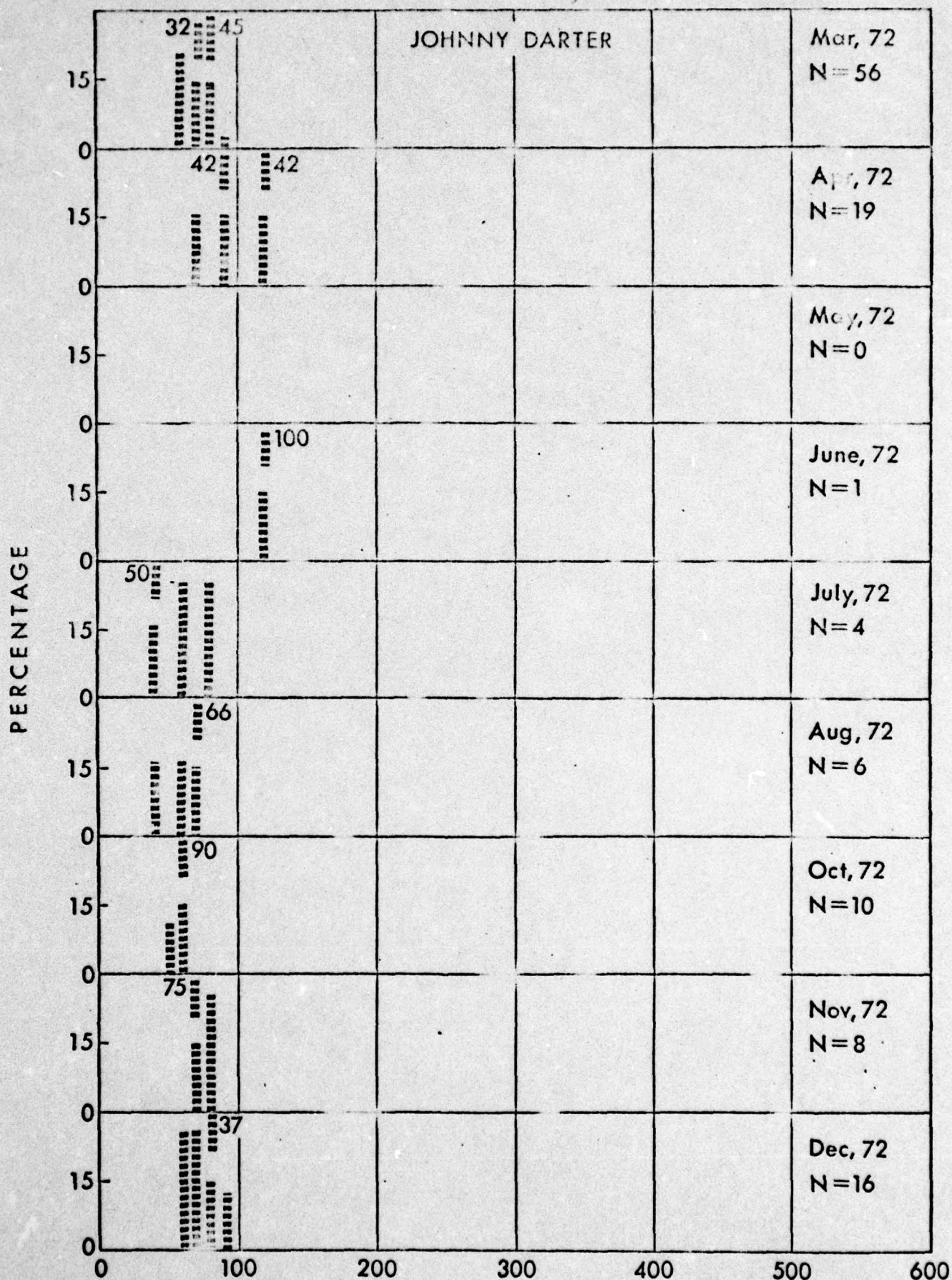


Fig. 15b FORK LENGTH FREQUENCY by 10 mm GROUPS



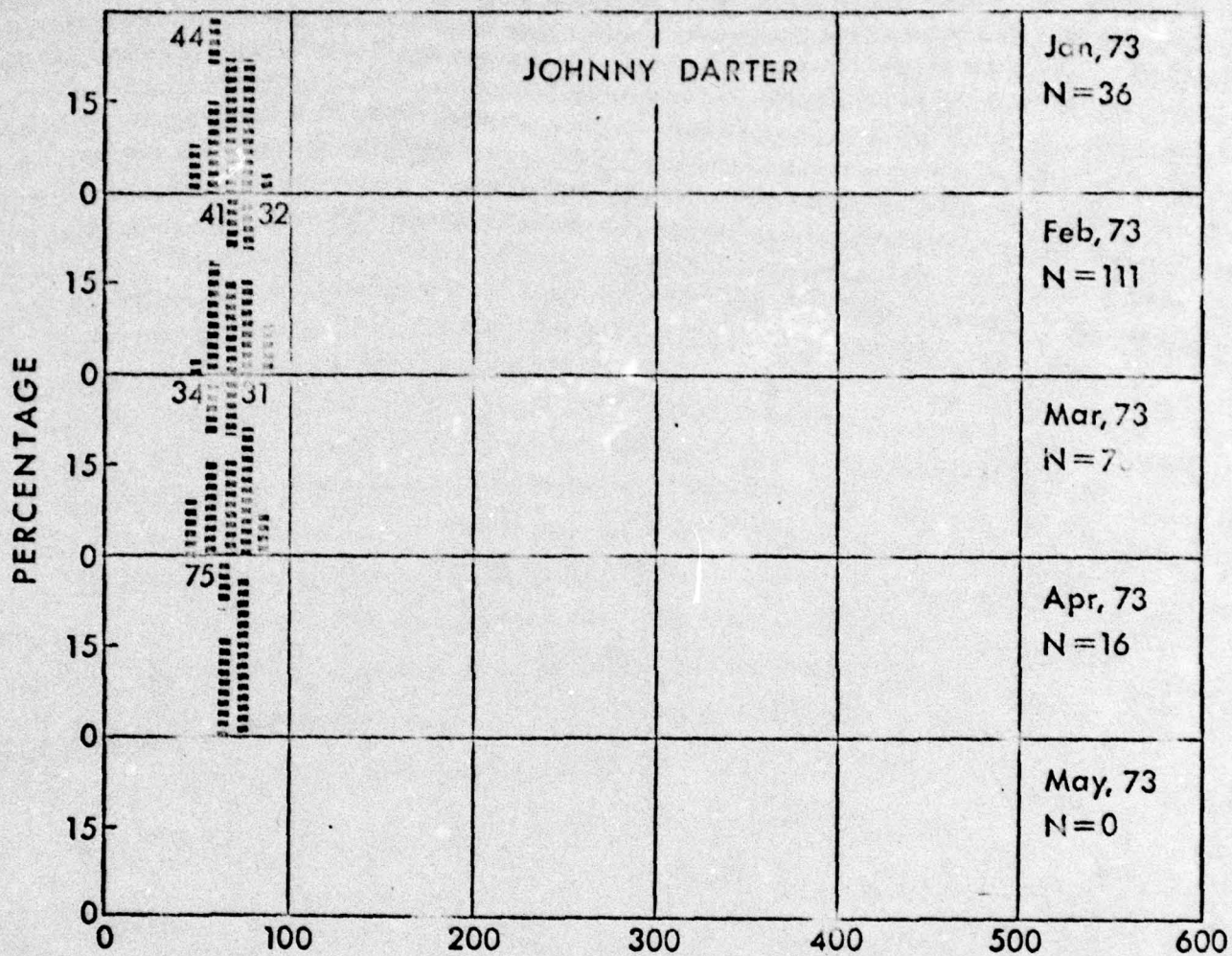
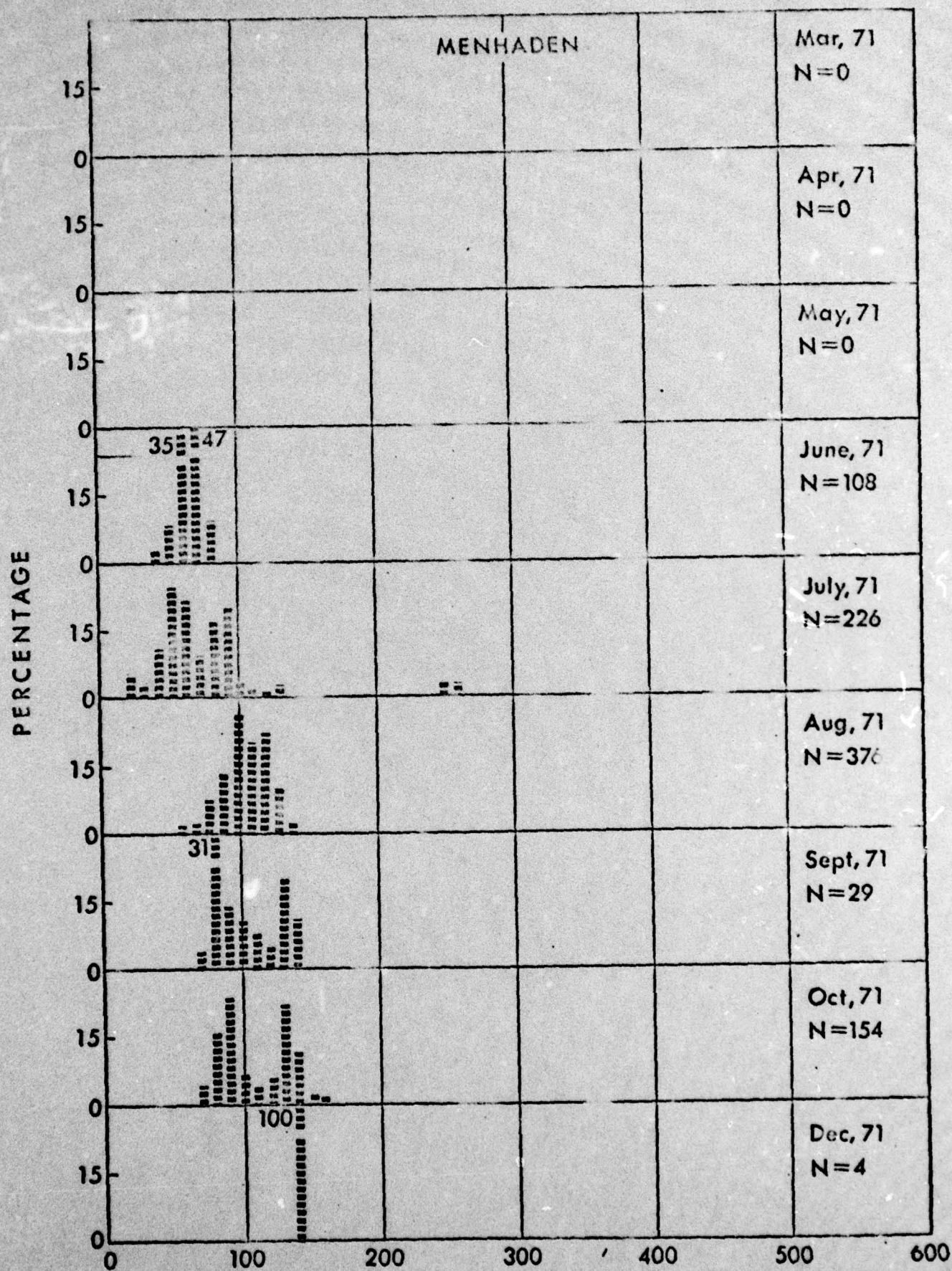


Fig. 15c FORK LENGTH FREQUENCY by 10 mm GROUPS



**Fig. 16a**    **FORK LENGTH FREQUENCY by 10 mm GROUPS**



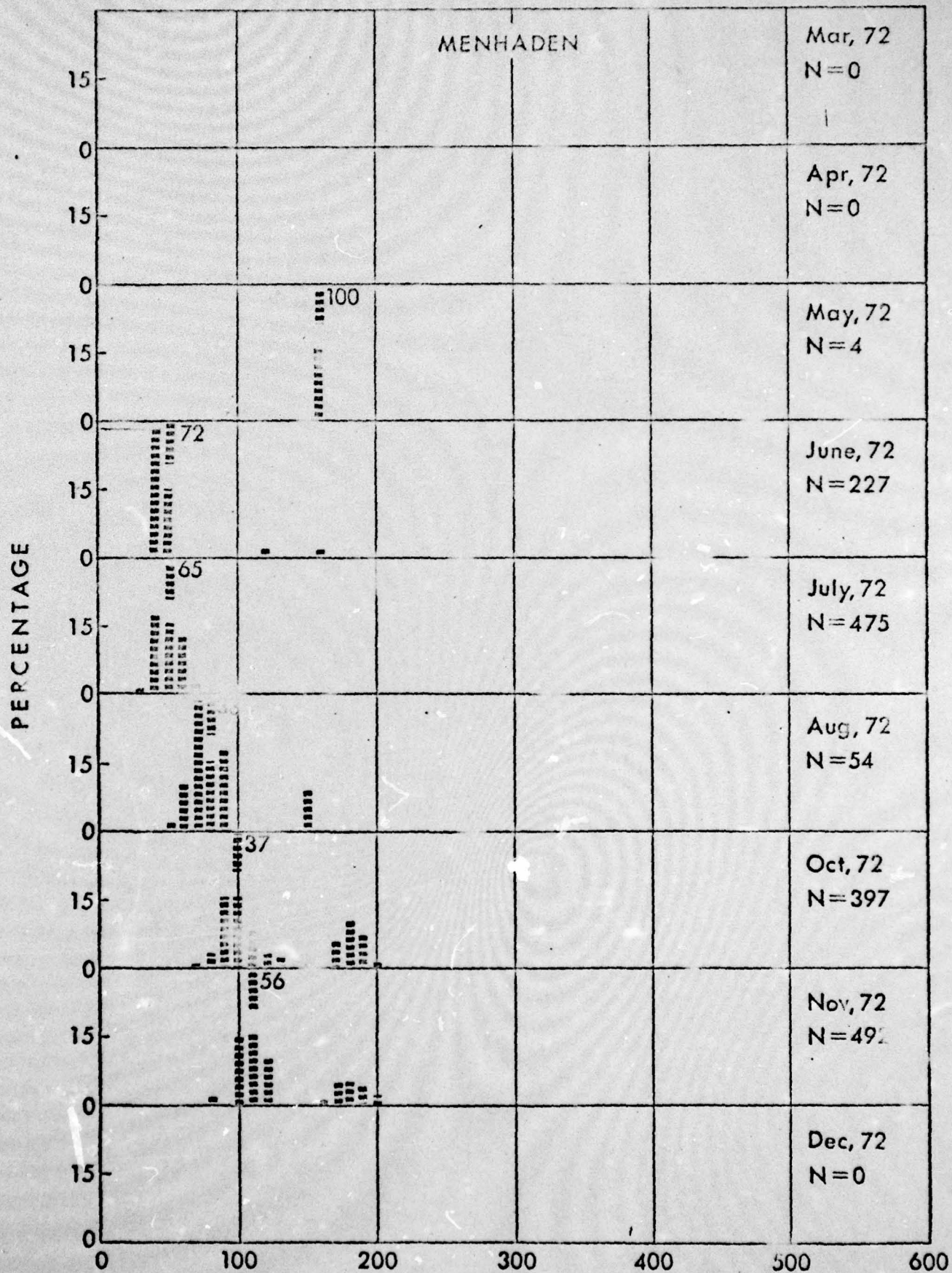


Fig. 16b

FORK LENGTH FREQUENCY by 10 mm GROUPS

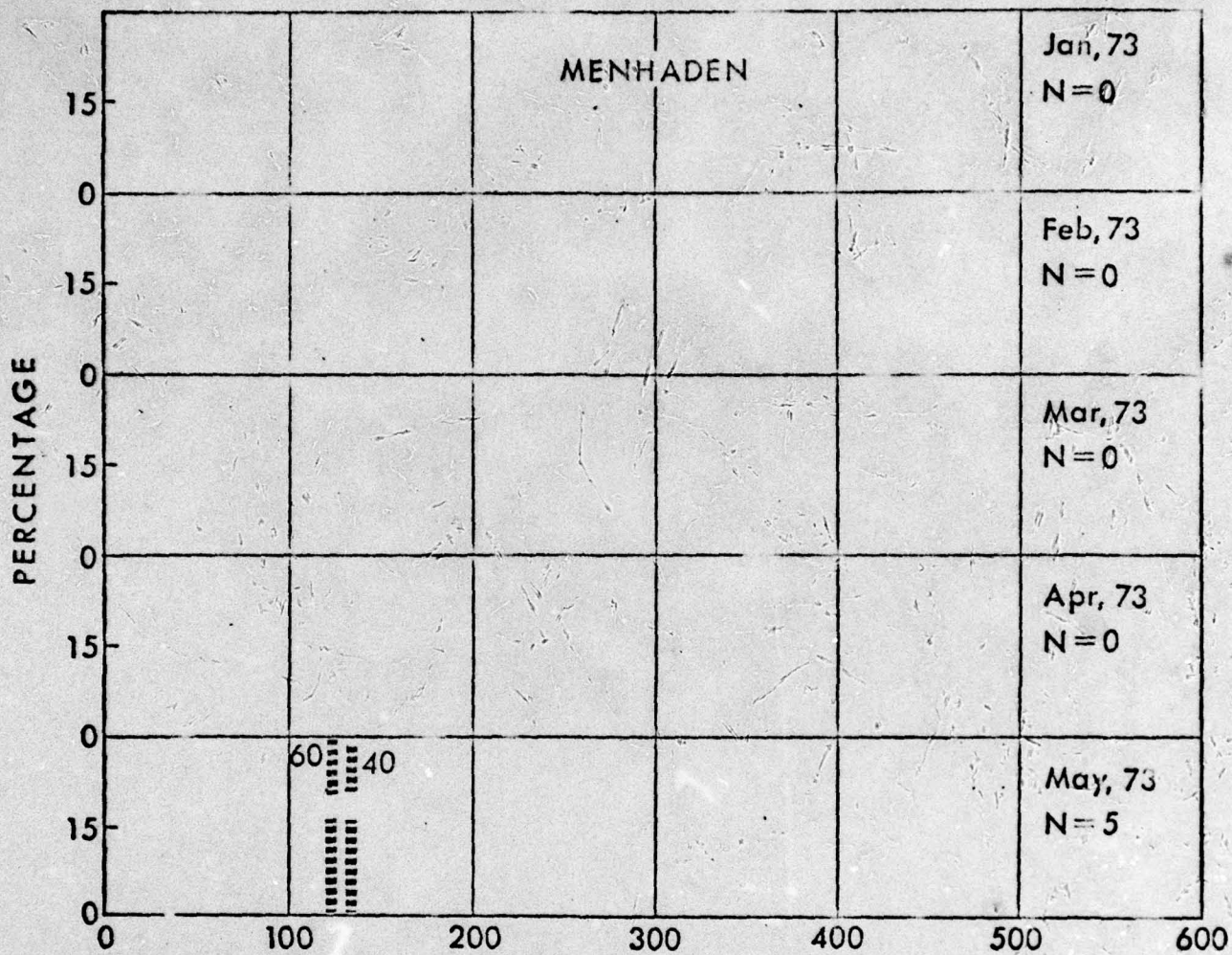
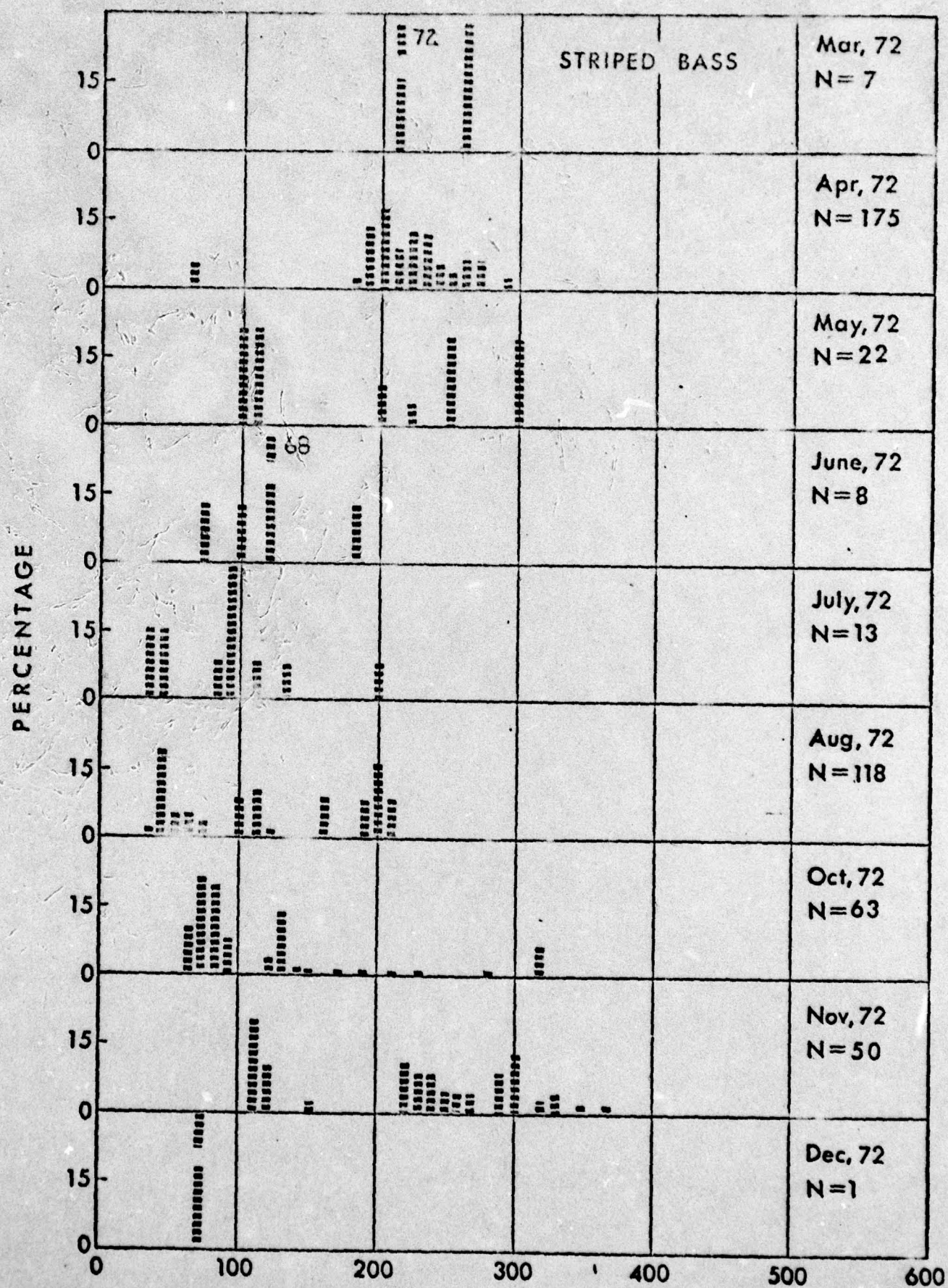


Fig. 16c FORK LENGTH FREQUENCY by 10 mm GROUPS





**Fig. 17b**      **FORK LENGTH FREQUENCY by 10 mm GROUPS**

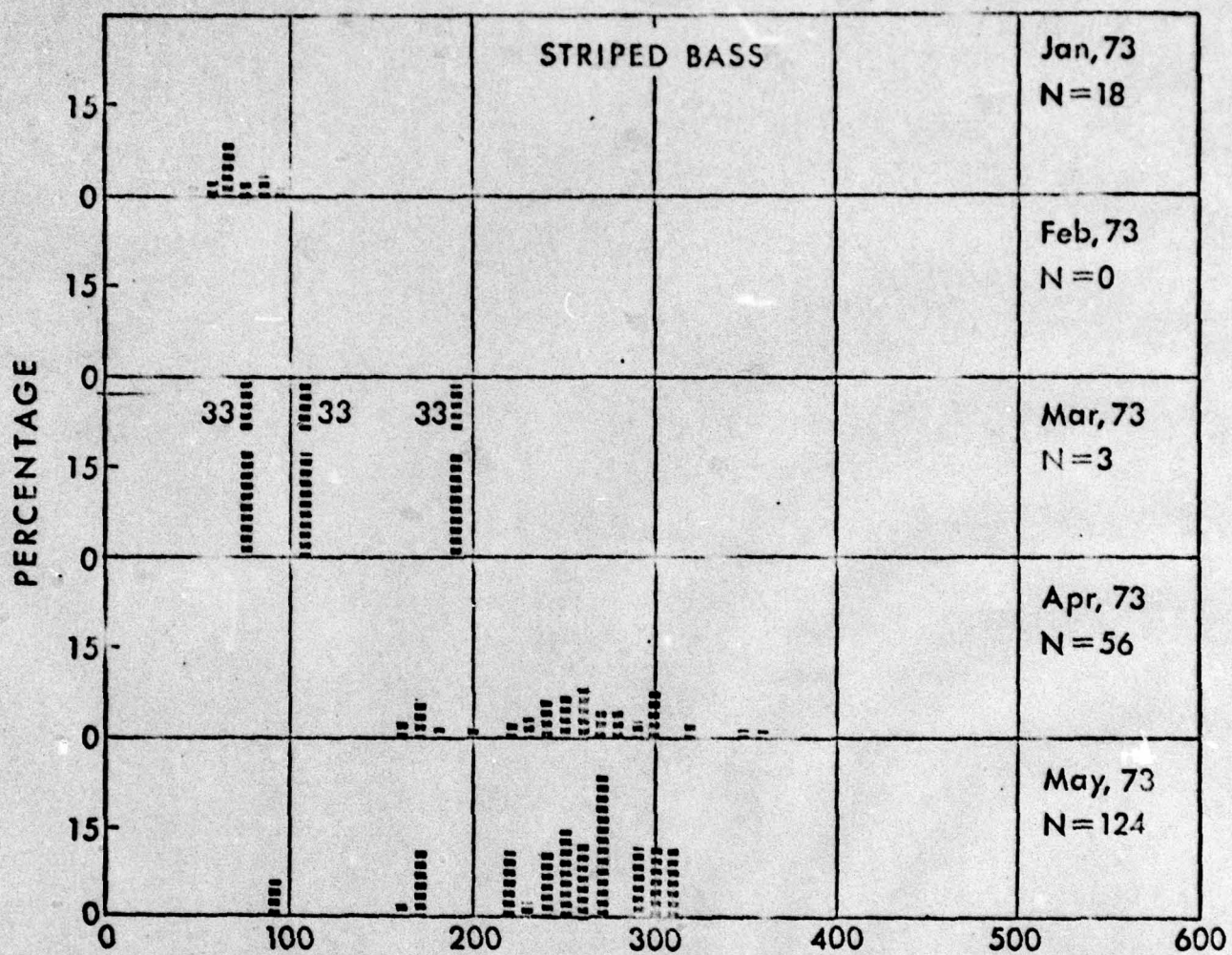


Fig. 17c FORK LENGTH FREQUENCY by 10 mm GROUPS



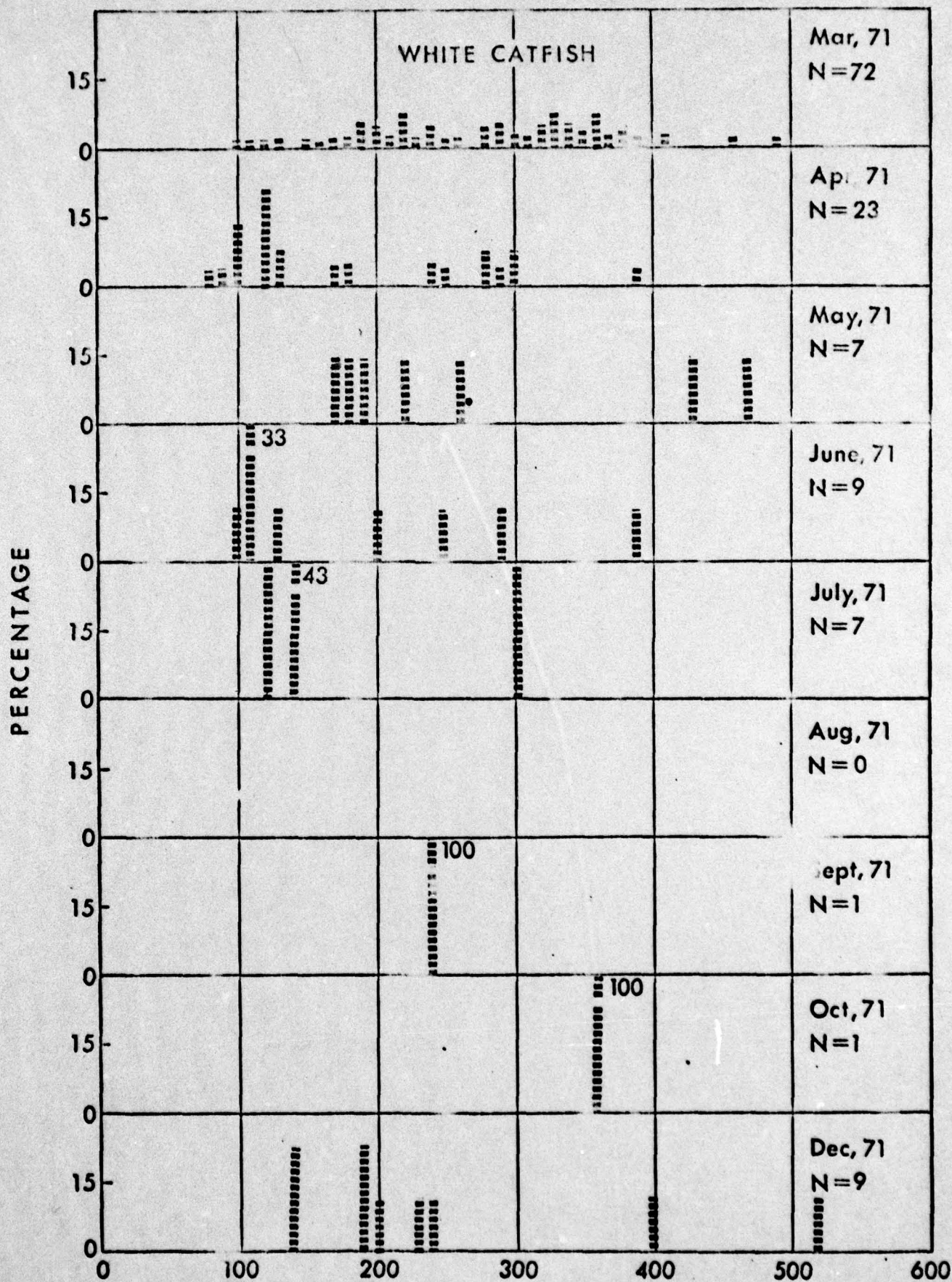


Fig. 18a

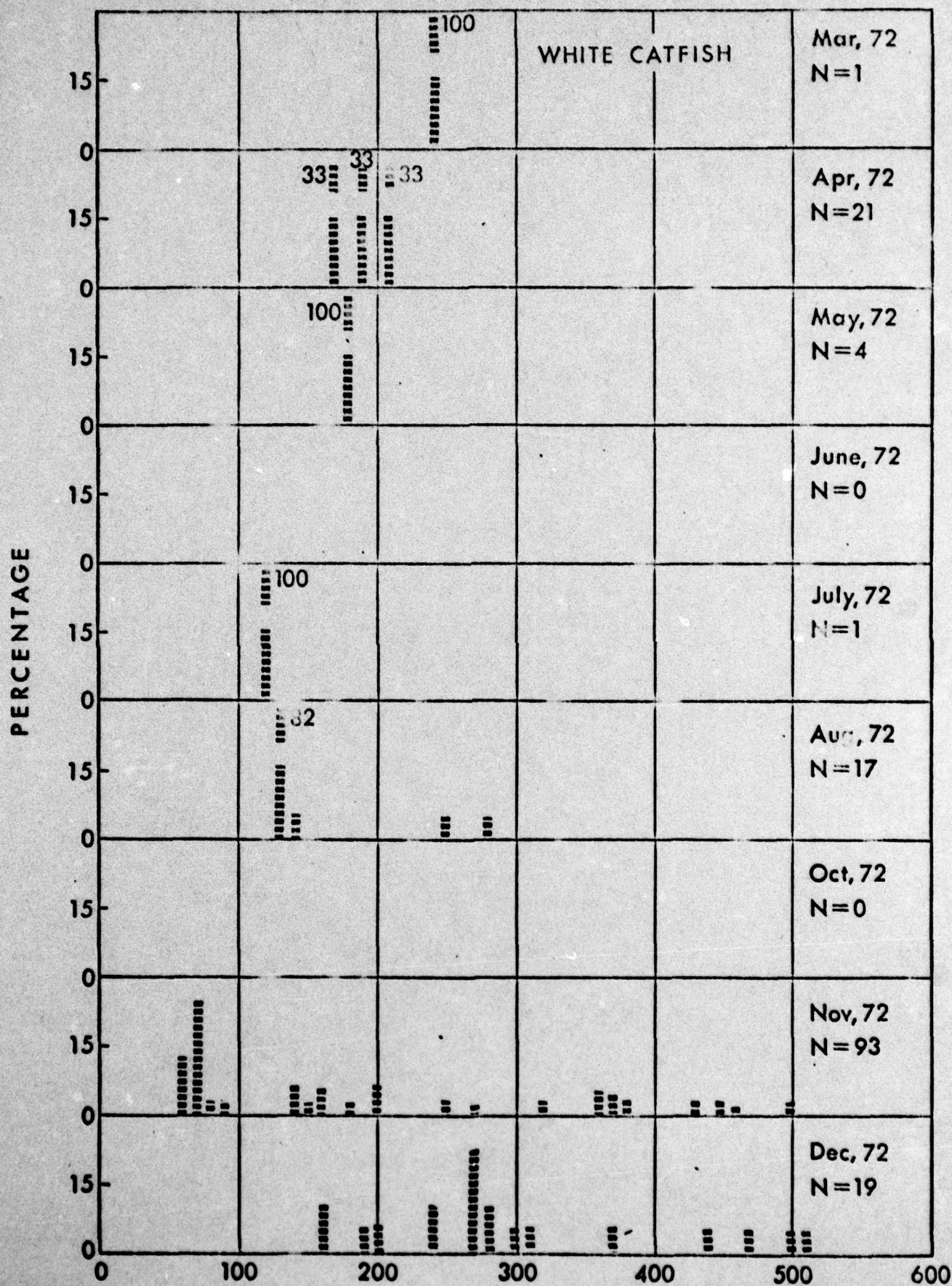


Fig. 18b



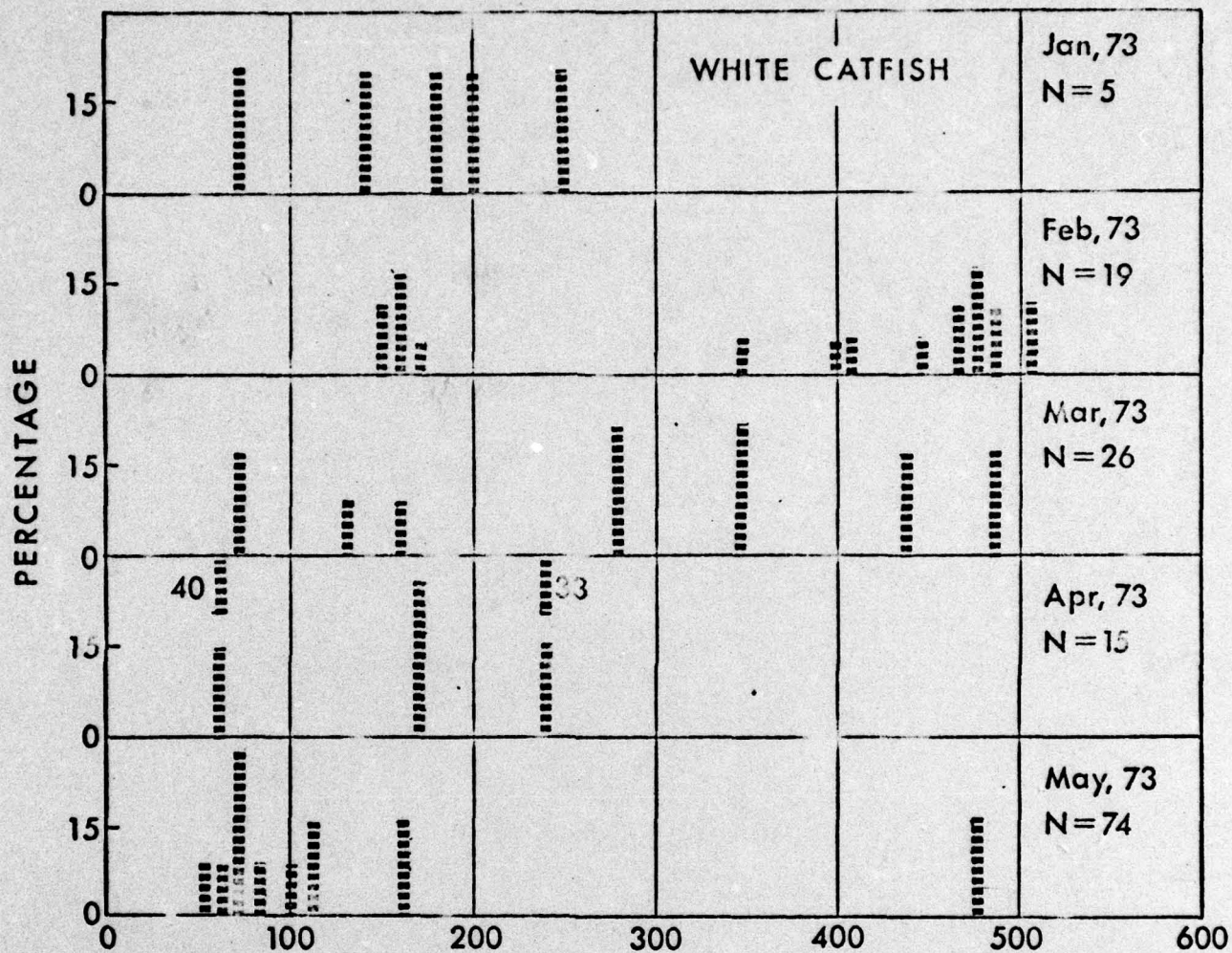


Fig. 18c FORK LENGTH FREQUENCY by 10 mm GROUPS

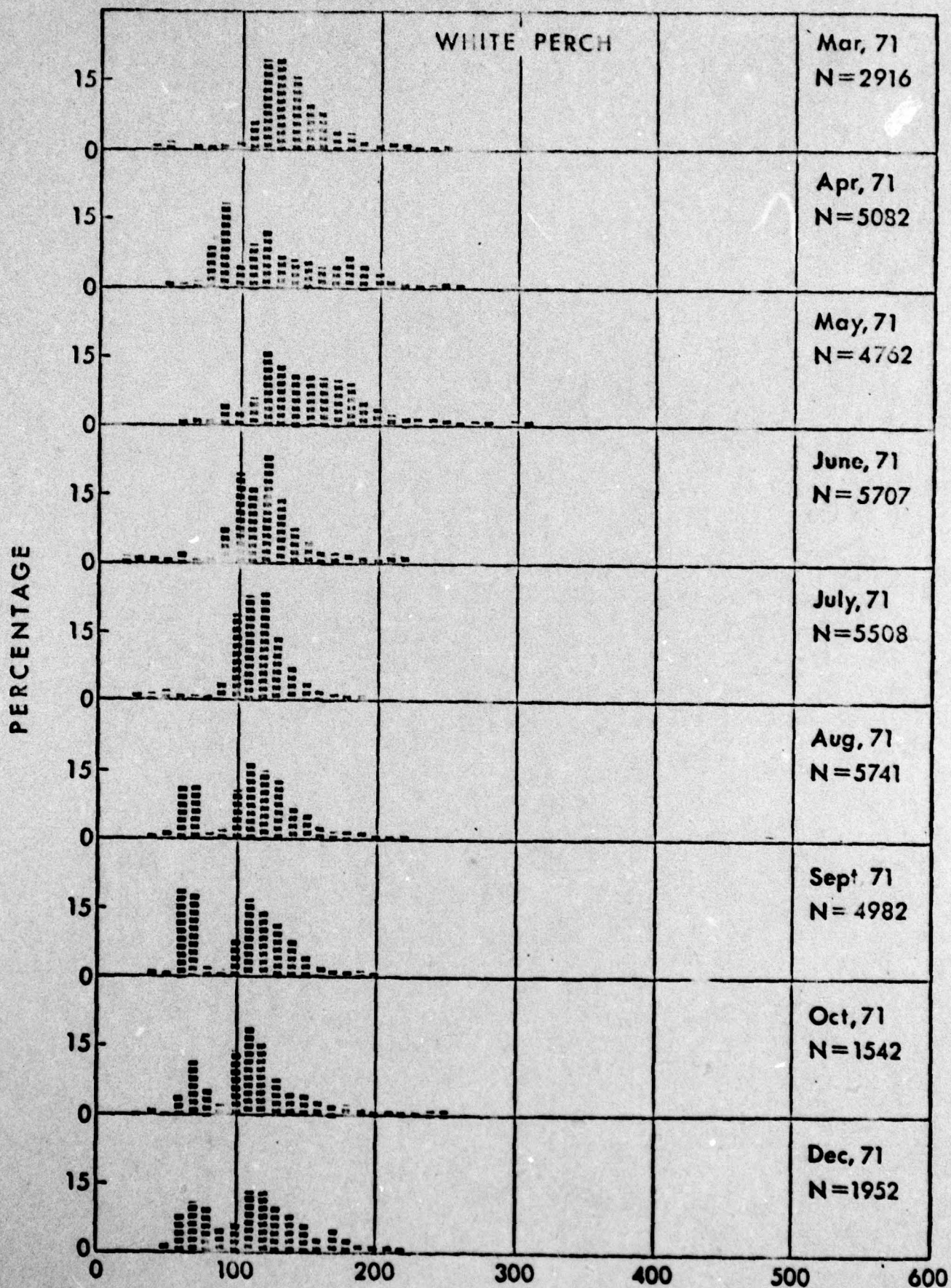


Fig. 19a FORK LENGTH FREQUENCY by 10 mm GROUPS



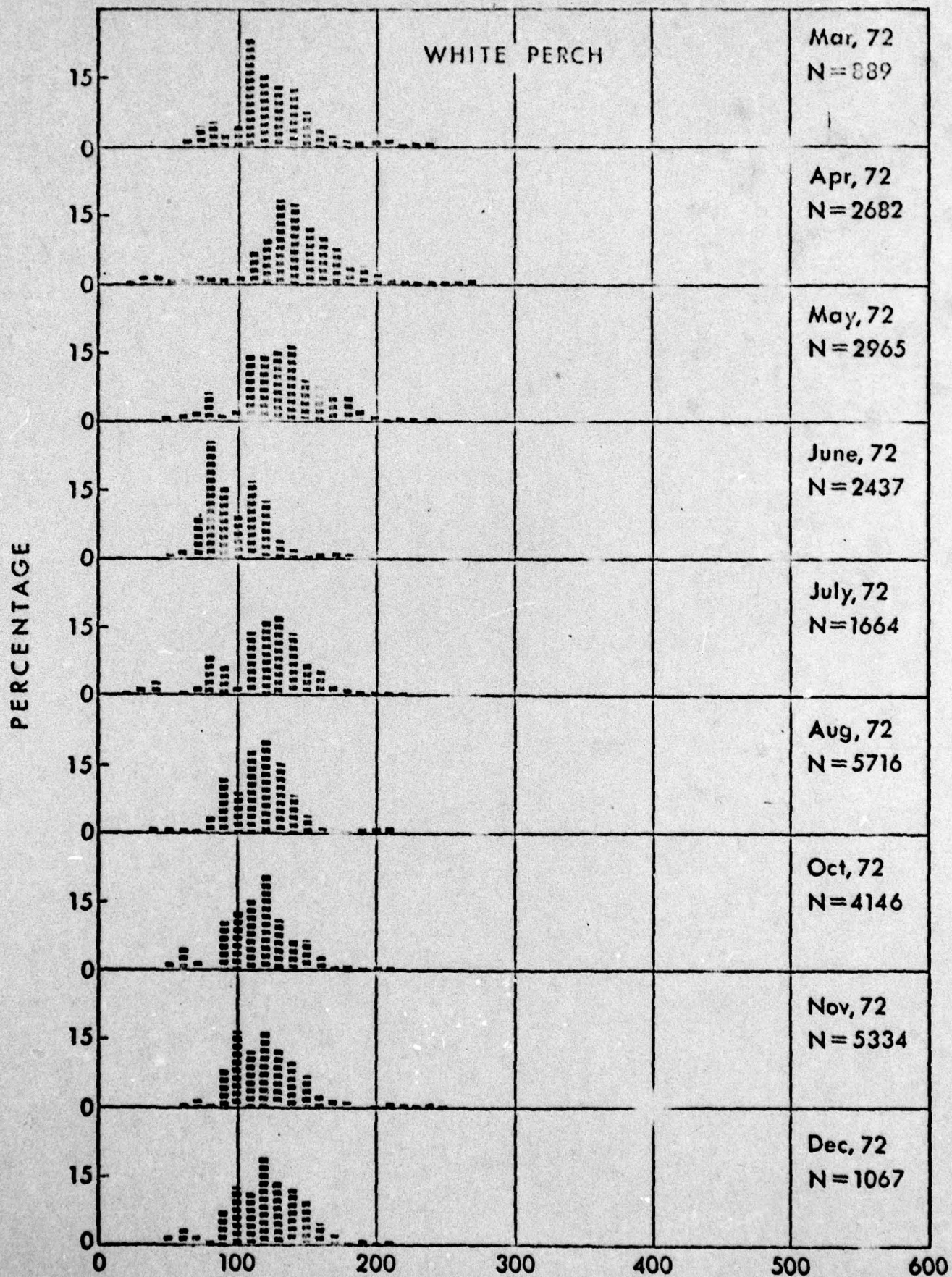


Fig. 19b FORK LENGTH FREQUENCY by 10 mm GROUPS

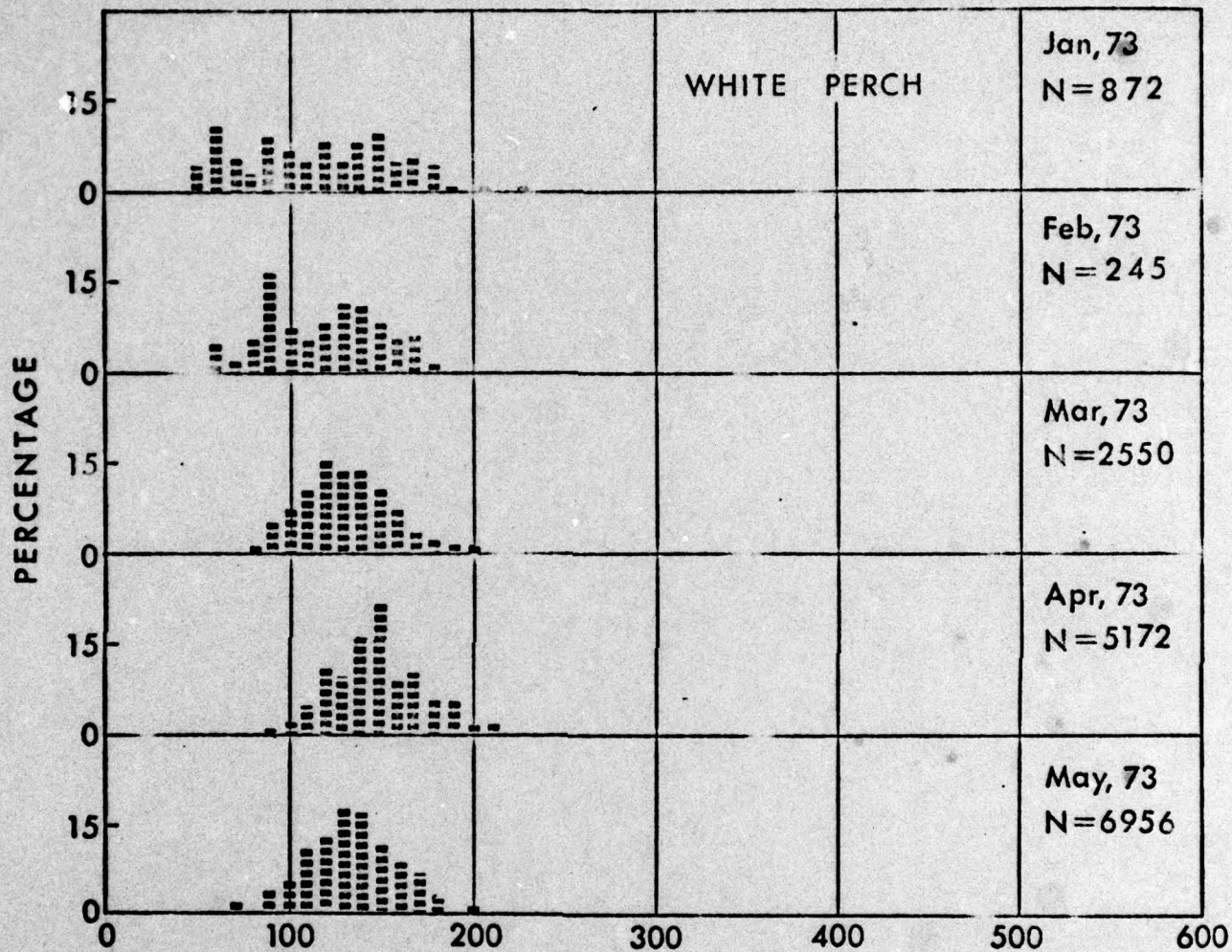


Fig. 19c FORK LENGTH FREQUENCY by 10 mm GROUPS



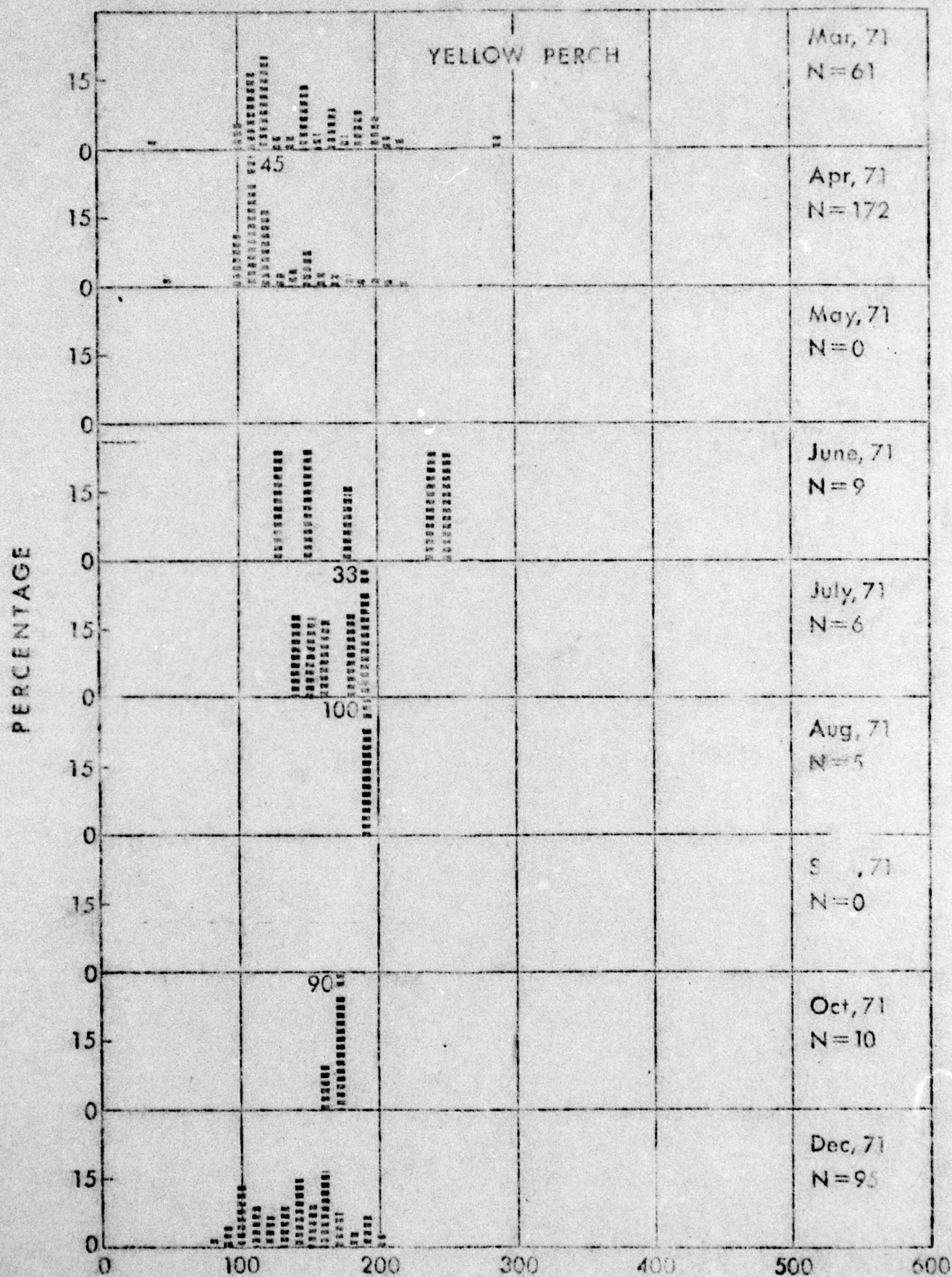


Fig. 20a

FORK LENGTH FREQUENCY by 10mm GROUPS





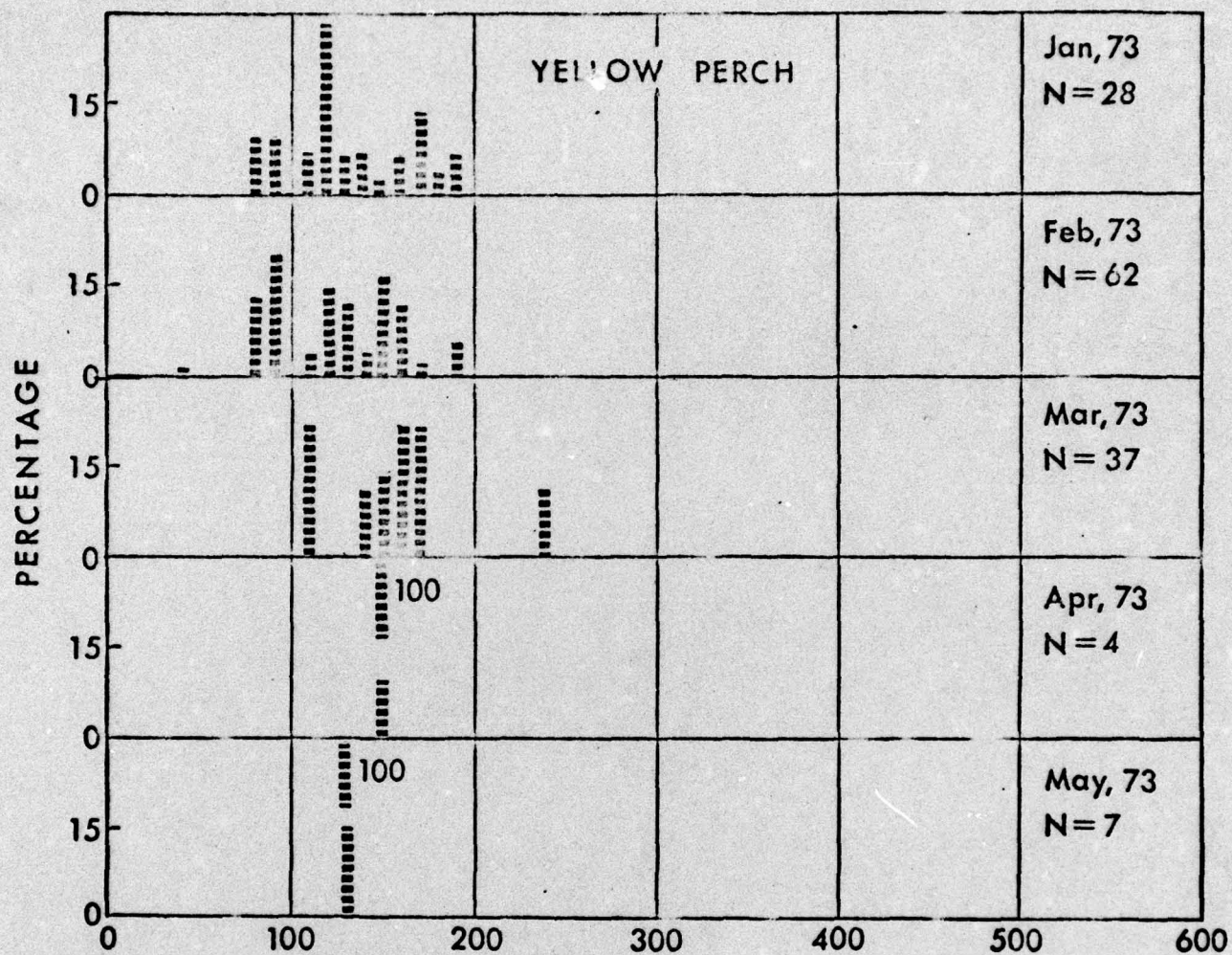


Fig. 20c . FORK LENGTH FREQUENCY by 10 mm GROUPS